

AD-A055 416

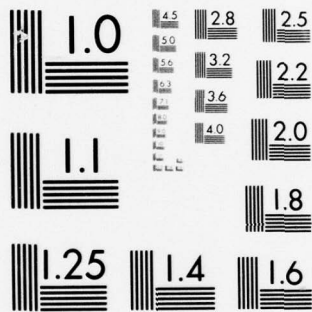
ARMY MOBILITY EQUIPMENT RESEARCH AND DEVELOPMENT COMM--ETC F/G 13/6  
FORKLIFT TRUCKS, GASOLINE-ENGINE-DRIVEN, 4000- TO 6000-POUND-CA--ETC(U)  
FEB 78 J E STEPHENS, J W REID  
MERADCOM-2231

UNCLASSIFIED

NL

| OF |  
AD  
A055416





MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

AD A 055416

DDC FILE COPY



FOR FURTHER TRAN

AD

12

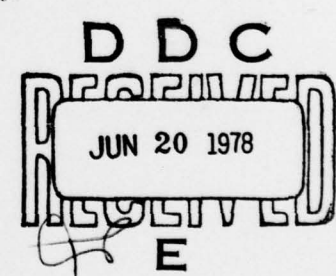
Report 2231

FORKLIFT TRUCKS, GASOLINE-ENGINE DRIVEN, 4000- TO  
6000-POUND-CAPACITY - MANUFACTURER SURVEY

by

James E. Stephens, Jr.  
and  
Jesse W. Reid, Jr.

February 1978



Approved for public release; distribution unlimited

U.S. ARMY MOBILITY EQUIPMENT  
RESEARCH AND DEVELOPMENT COMMAND  
FORT BELVOIR, VIRGINIA

78 06 15 034

Destroy this report when no longer needed.  
Do not return it to the originator.

The citation in this report of trade names of commercially  
available products does not constitute official endorsement  
or approval of the use of such products.



UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER 2231	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) FORKLIFT TRUCKS, GASOLINE-ENGINE-DRIVEN, 4000- TO 6000-POUND-CAPACITY - MANUFACTURER SURVEY		5. TYPE OF REPORT & PERIOD COVERED
7. AUTHOR(s) James E. Stephens, Jr. Jesse W. Reid, Jr.		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Mech & Constr Eqpt Lab, DRDME-HM U.S. Army Mobility Equipment Research and Development Command, Fort Belvoir, Virginia 22060		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS Commander U.S. Army Mobility Equipment Research and Development Command, Fort Belvoir, Virginia 22060		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) 1273 P.		12. REPORT DATE February 1978
		13. NUMBER OF PAGES 77
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report)  Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) MERADCOM-2231		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Material-Handling Equipment      Maintenance Forklift Truck      Reliability, Availability, and Maintainability Gasoline Engine      Quality Assurance Pneumatic Tire      Specification Solid-Rubber Tire      Procurement		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report results from recent emphasis on procurement of commercial items in lieu of Military Adaptation of Commercial Items (MACI). To satisfy the prerequisites for procuring/fielding commercial material-handling equipment, MERADCOM implemented a seven-phase program. This report presents the results of the first two phases. → next page  (Continued) 403 260		

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

(Block 20 Cont'd)

Four major manufacturers of forklift trucks were visited by a Survey Team using a Manufacturer Survey Questionnaire (Technical Information Package (TIP)). Each manufacturer proposed a model which should satisfy the three size requirements in the item descriptions used in conjunction with the TIP.

Results from the survey include a candidate make and model list for the three size requirements. The results support this general conclusion: Commercial forklift trucks do not differ significantly from forklift trucks previously procured by the Army using MACI specifications.

ACCESSION for	
NTIS	White Section <input checked="" type="checkbox"/>
DDC	Buff Section <input type="checkbox"/>
UNANNOUNCED	<input type="checkbox"/>
JUSTIFICATION.....	
BY.....	
DISTRIBUTION/AVAILABILITY CODES	
Dist.	AVAIL. and/or SPECIAL
A	

## CONTENTS

Section	Title	Page
	ILLUSTRATIONS	iv
	TABLES	iv
	METRIC CONVERSION FACTORS	v
I	INTRODUCTION	
	1. Background	1
	2. Description of Forklift Truck	1
	3. Objective	3
	4. Scope	3
II	SURVEY OF MANUFACTURERS	
	5. Baseline Descriptions	3
	6. Preparation of the Manufacturer Survey Questionnaire	3
	7. Selection of the Manufacturers	4
III	RESULTS OF SURVEY OF MANUFACTURERS	
	8. Visits to Manufacturers	4
	9. TIP Evaluation	4
IV	CONCLUSIONS	
	10. Conclusions	5
	APPENDICES	
	A. Baseline Item Descriptions for the Forklift Trucks	24
	B. Technical Information Package for Trucks, Lift, Fork, Gasoline-Engine-Driven, 4000- to 6000-Pound-Capacity	31

78 06 15 034

## ILLUSTRATIONS

Figure	Title	Page
1	Allis-Chalmers Model ACC40 Forklift Truck Procured by Using Military Specification MIL-T-52862	2
2	Allis-Chalmers Forklift Truck Similar to Model ACP70	6
3	Clark Forklift Truck, Model C30040	7
4	Clark Forklift Truck, Model C500Y70	8
5	Hyster Forklift Truck Similar to Model S50C	9
6	Hyster Forklift Truck, Model H70C	10
7	Towmotor Forklift Truck Similar to Model T40B	11
8	Towmotor Forklift Truck, Model T50B	12
9	Towmotor Forklift Truck, Model V60B	13

## TABLES

Table	Title	Page
1	Forklift Trucks Listed by Manufacturers in TIPs Submitted to MERADCOM	5
2	Comparison of Standard/Optional Features	14
3	Comparison of Technical/Automotive Characteristics of Commercial Forklift Trucks	16

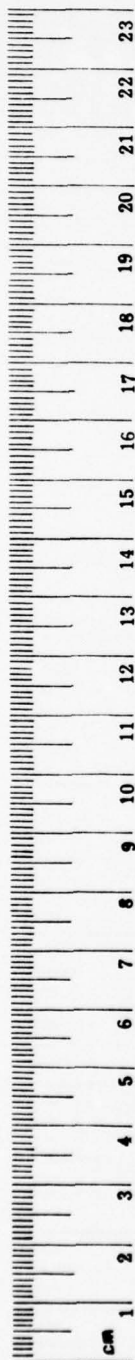
# **METRIC CONVERSION FACTORS** **Approximate Conversions to Metric Measures**

Symbol	When You Know	Multiply by	To Find	Symbol
<b>LENGTH</b>				
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
<b>AREA</b>				
in <sup>2</sup>	square inches	6.5	square centimeters	cm <sup>2</sup>
ft <sup>2</sup>	square feet	0.09	square meters	m <sup>2</sup>
yd <sup>2</sup>	square yards	0.8	square meters	m <sup>2</sup>
mi <sup>2</sup>	square miles	2.6	square kilometers	km <sup>2</sup>
	acres	0.4	hectares	ha
<b>MASS (weight)</b>				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	metric tons	t
<b>VOLUME</b>				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	L
pt	pints	0.47	liters	L
qt	quarts	0.95	liters	L
gal	gallons	3.8	liters	L
ft <sup>3</sup>	cubic feet	0.03	cubic meters	m <sup>3</sup>
yd <sup>3</sup>	cubic yards	0.76	cubic meters	m <sup>3</sup>
<b>TEMPERATURE (exact)</b>				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

\* 1 in = 2.54 cm (exactly).







### Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
--------	---------------	-------------	---------	--------

#### LENGTH

mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi

#### AREA

cm <sup>2</sup>	square centimeters	0.16	square inches	in <sup>2</sup>
m <sup>2</sup>	square meters	1.2	square yards	yd <sup>2</sup>
km <sup>2</sup>	square kilometers	0.4	square miles	mi <sup>2</sup>
ha	hectares (10 000 m <sup>2</sup> )	2.5	acres	

#### MASS (weight)

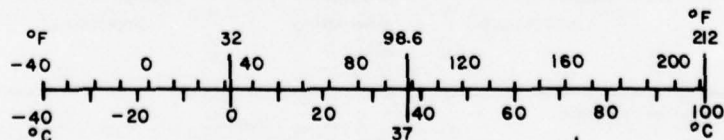
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	metric tons (1000 kg)	1.1	short tons	

#### VOLUME

ml	milliliters	0.03	fluid ounces	fl oz
L	liters	2.1	pints	pt
L	liters	1.06	quarts	qt
L	liters	0.26	gallons	gal
m <sup>3</sup>	cubic meters	35	cubic feet	ft <sup>3</sup>
m <sup>3</sup>	cubic meters	1.3	cubic yards	yd <sup>3</sup>

#### TEMPERATURE (exact)

°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F
----	---------------------	-------------------	------------------------	----



# **FORKLIFT TRUCKS, GASOLINE-ENGINE-DRIVEN,** **4000- TO 6000-POUND-CAPACITY – MANUFACTURER SURVEY**

## **I. INTRODUCTION**

1. **Background.** On 24 May 1976, the Office of Management and Budget directed the Government to emphasize the acquisition of commercial, off-the-shelf products in order to achieve optimal effectiveness in supply support operations. The resulting emphasis on procurement of commercial products included the forklift truck procured previously as a Military Adaption of Commercial Item (MACI). Therefore, MERADCOM initiated a program to develop a procurement document whereby commercial, off-the-shelf, forklift trucks (4000- to 6000-pound-capacity) could be procured and supported. This program for the forklift trucks includes the following steps:

- a. Prepare the Manufacturer Survey Questionnaire.
- b. Conduct and report the Manufacturer Survey.
- c. Prepare the User Survey Questionnaire.
- d. Conduct and report the User Survey.
- e. Develop the procurement specification.
- f. Procure commercial forklift trucks.
- g. Type Classify.

2. **Description of Forklift Truck.** In the past, Military adaptations of commercial forklifts (4000- to 6000-lb) have been procured using MIL-T-52862. (A 4000-lb forklift procured using MIL-T-52862 is shown in Figure 1.) This specification in turn was assumed to represent the requirement baseline for commercially available forklifts. These forklifts can be described by the following general parameters:

	<u>Size 1</u>	<u>Size 2</u>	<u>Size 3</u>
Lift Capacity (lb):	4000	4000	4000
Engine Type:	Gasoline	Gasoline	Gasoline
Lift Height (in.):	144	180	180
Load Center (in.):	24	24	24
Tire Type:	Solid-Rubber	Solid-Rubber	Pneumatic
Transmission:	Automatic	Automatic	Automatic
Maneuverability (right-angle turn dimension (in.) with 48-in. by 48-in. pallet):			
Without Sid-shifter (in.):	150	150	196
With Sideshifter (in.):	154	160	200
Ambient Temperature Range (°F):	0-110	0-110	0-110
Typical Use:	In general warehouses, depots, and other defense installations.		



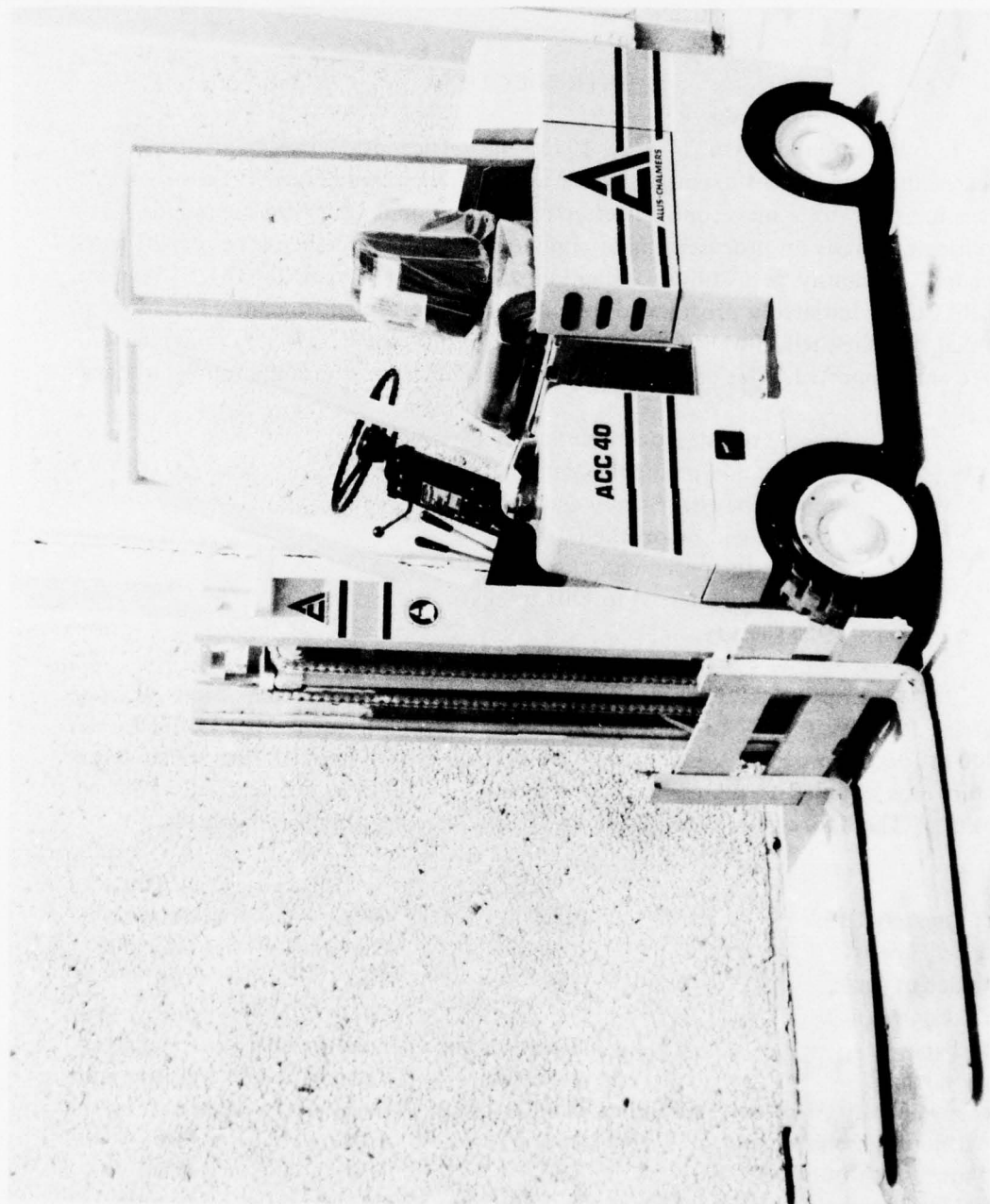


Figure 1. Allis-Chalmers Model ACC40 forklift truck procured by using Military Specification MIL-T-52862.

3. **Report Objective.** The objective is to report the results of the survey of four manufacturers of commercial forklifts: Allis-Chalmers, Clark, Hyster, and Towmotor.

4. **Scope.** This report considers the initial two elements of this program:

- a. Developing the Manufacturer Survey Questionnaire.
- b. Conducting and Reporting the Manufacturer Survey.

## II. SURVEY OF MANUFACTURERS

5. **Baseline Descriptions.** One important purpose of the Manufacturer's Survey Questionnaire was a dry run of the first step of a two-step procurement. Therefore, baseline descriptions were necessary to insure that each manufacturer responded to an identical baseline. The forklift descriptions presented in paragraph 2 were expanded into narrative formats to briefly state the Army's requirements for forklifts. These baseline descriptions are presented in Appendix A. Note that three different forklifts are described: A 4000-lb-capacity @ 144-in. lift height with solid-rubber tires; a 4000-lb-capacity @ 180-in. lift height with solid-rubber tires; a 6000-lb-capacity @ 180-in. lift height with pneumatic tires.

6. **Preparation of the Manufacturer Survey Questionnaire.** MERADCOM developed a survey questionnaire for use in the Commercial Equipment Program Surveys being reported and for eventual use in two-step procurement of forklift trucks. In two-step procurement, the manufacturer, as the first step, will use the questionnaire to describe his product. The Government will then evaluate each manufacturer's response to insure it represents the manufacturer's commercial product and satisfies the contract specification. Part of the Government's evaluation will include input from a survey of commercial users of these forklift trucks. The manufacturers judged to be responsive after this evaluation will be requested, as the second procurement step, to submit competitive bids based on their response/description, together with the Government's evaluation findings. Finally, the Government will use the information presented by the manufacturer in Step 1 to accept or reject the forklift trucks when they are inspected for acceptance by the Government.

These questionnaires were prepared to solicit the following information from the manufacturer:

- a. Candidate model/name.
- b. Standard equipment list.
- c. Optional equipment list.
- d. Major component specification/manufacturer/part number.
- e. Logistical/maintenance impact data.
- f. Commercial user list.

The manufacturer survey questionnaire was coordinated with the various interested agencies including TARCOM and DARCOM Packaging, Storage, and Containerization Center (User Representative). A comprehensive questionnaire resulted which was designated the Technical Information Package (TIP) (Appendix B) for the forklift. Each manufacturer was requested to complete the TIP for his forklift(s) which corresponded to the previously discussed and presented item description (Appendix A).

**7. Selection of the Manufacturers.** The following criteria similar to those used in other Army programs were developed to identify manufacturers of forklifts which closely match the Army's requirements:

The manufacturer shall produce a standard forklift which corresponds to the item described. Furthermore, the manufacturer shall have marketed the standard forklift in significant quantities to commercial users for at least one year. However, normal product improvement changes introduced in this one year are acceptable.

Using these criteria, MERADCOM identified more than 30 manufacturers. Obviously, all 30 manufacturers could not be surveyed; therefore, the four major manufacturers of commercial forklifts (Allis-Chalmers, Clark, Hyster, and Towmotor) were selected as survey candidates. By coincidence, these four manufacturers have also supplied the majority of the Army's forklifts during the past several years. The decision to survey these four major manufacturers, however, does not preclude other manufacturers from bidding on a contract, provided they meet the previously stated criteria. However, if manufacturers other than the four selected submit bids, their commercial users will be surveyed as part of the first-step evaluation.

### III. RESULTS OF SURVEY OF MANUFACTURERS

**8. Visits to Manufacturers.** Each manufacturer was visited and the Government's program to culminate in the purchase of commercial forklifts was explained. The manufacturer was requested to complete and send the TIPs to MERADCOM. The manufacturers were cooperative and fulfilled MERADCOM's request. The completed TIPs were too voluminous to include in this report and are filed separately at MERADCOM.

**9. TIP Evaluation.** Table 1 summarizes the forklifts depicted by the manufacturers in the TIPs submitted to MERADCOM. Only one manufacturer specified different models for the two lift-height requirements at 4000-pound capacity. Photographs of each of the nine makes/models listed in Table 1 are shown in Figures 2 through 9.

Table 1. Forklift Trucks Listed by Manufacturers in TIPs Submitted to MERADCOM

Manufacturer	Model No.		
	4000-lb-cap. @ 144-in. Lift Height (Size 1)	4000-lb-cap. @ 180-in. Lift Height (Size 2)	6000-lb-cap. @ 180-in. Lift Height (Size 3)
Allis-Chalmers	ACC45B	ACC45B	ACP70
Clark	C30040	C30040	C500Y70
Hyster	S50C	S50C	H70C
Towmotor	T40B	T50B	V60B

Table 2 prepared from the data presented in the TIPs, compares the various manufacturers' standard and optional features and states whether or not these will be supplied. In general, the comparison in Table 2 verifies a pre-survey observation — forklifts purchased via MIL-T-52862 do not differ significantly from commercial forklifts. This is true, as the requirements of MIL-T-52862 can be satisfied by optional or available special features from each manufacturer. Table 2 will be useful to develop the rationale concerning which features should be specified in the Army's specification for commercial forklift trucks. One approach would be to specify only the required features which are not standard with all manufacturers. This approach assumes that the manufacturers will provide their standard models even if these features are not mentioned in the specification (MIL-T-52932).

Table 3 compares the technical/automotive characteristics of standard, commercial forklifts from the four manufacturers surveyed. Technically/automotively the forklifts do not differ significantly from the forklifts procured previously using MIL-T-52862 except for certain features such as absence of lifting eyes.

All manufacturers complied with the request to list industrial users of the forklift trucks described in their TIPs. User surveys are covered by MERADCOM Report 2230.

#### IV. CONCLUSIONS

##### 10. Conclusions. It is concluded that:

- a. Commercial forklift trucks do not differ significantly from forklift trucks previously procured by the Army using MIL-T-52852.
- b. The makes and models of commercial forklift trucks the four major manufacturers will offer to meet the Government specification for commercial material-handling equipment were identified.
- c. Industrial users of the various makes/models of commercial forklift trucks were identified.



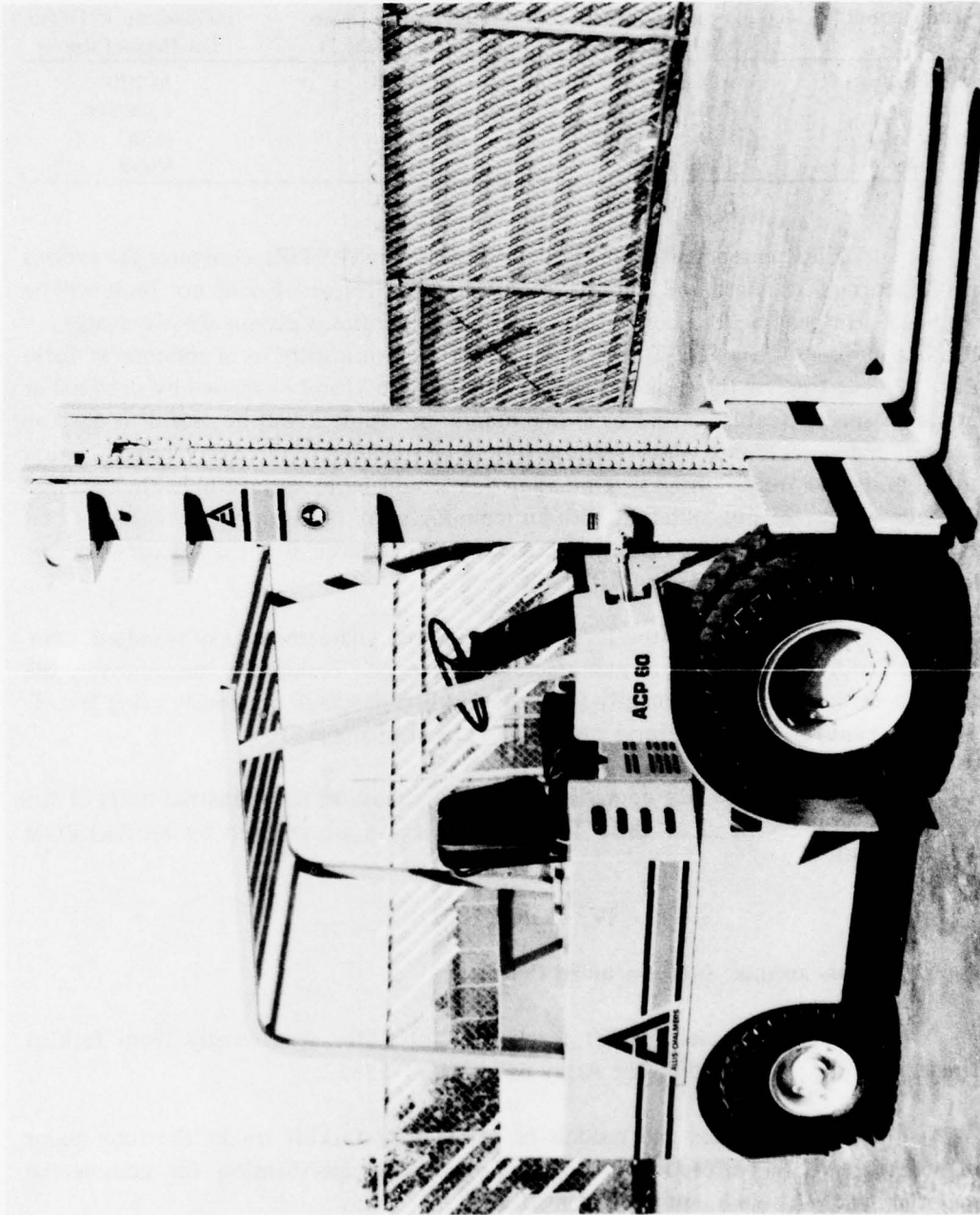


Figure 2. Allis-Chalmers forklift truck similar to Model ACP 70.

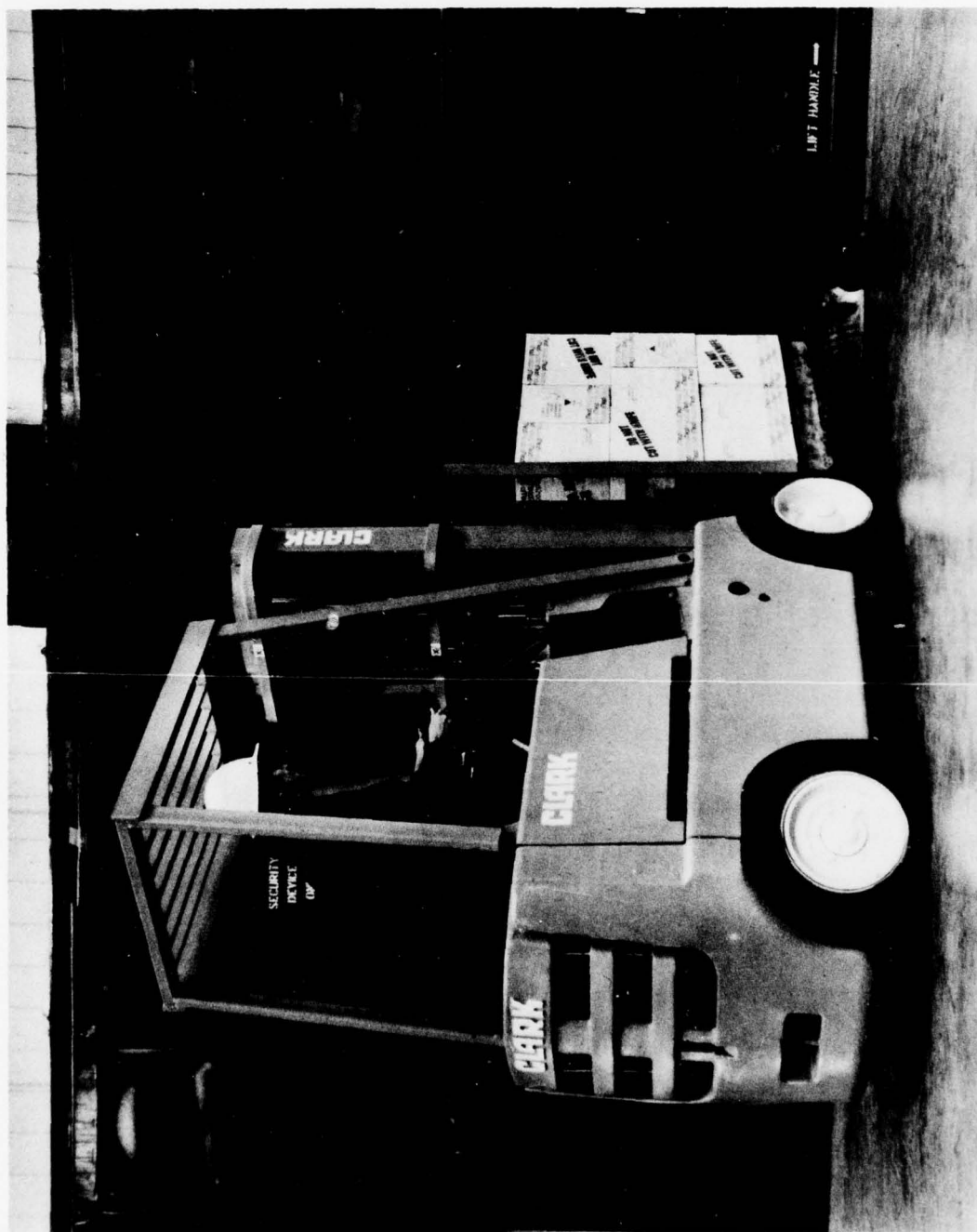


Figure 3. Clark forklift truck, Model C300-40.



Figure 4. Clark forklift truck, Model C500-Y70.



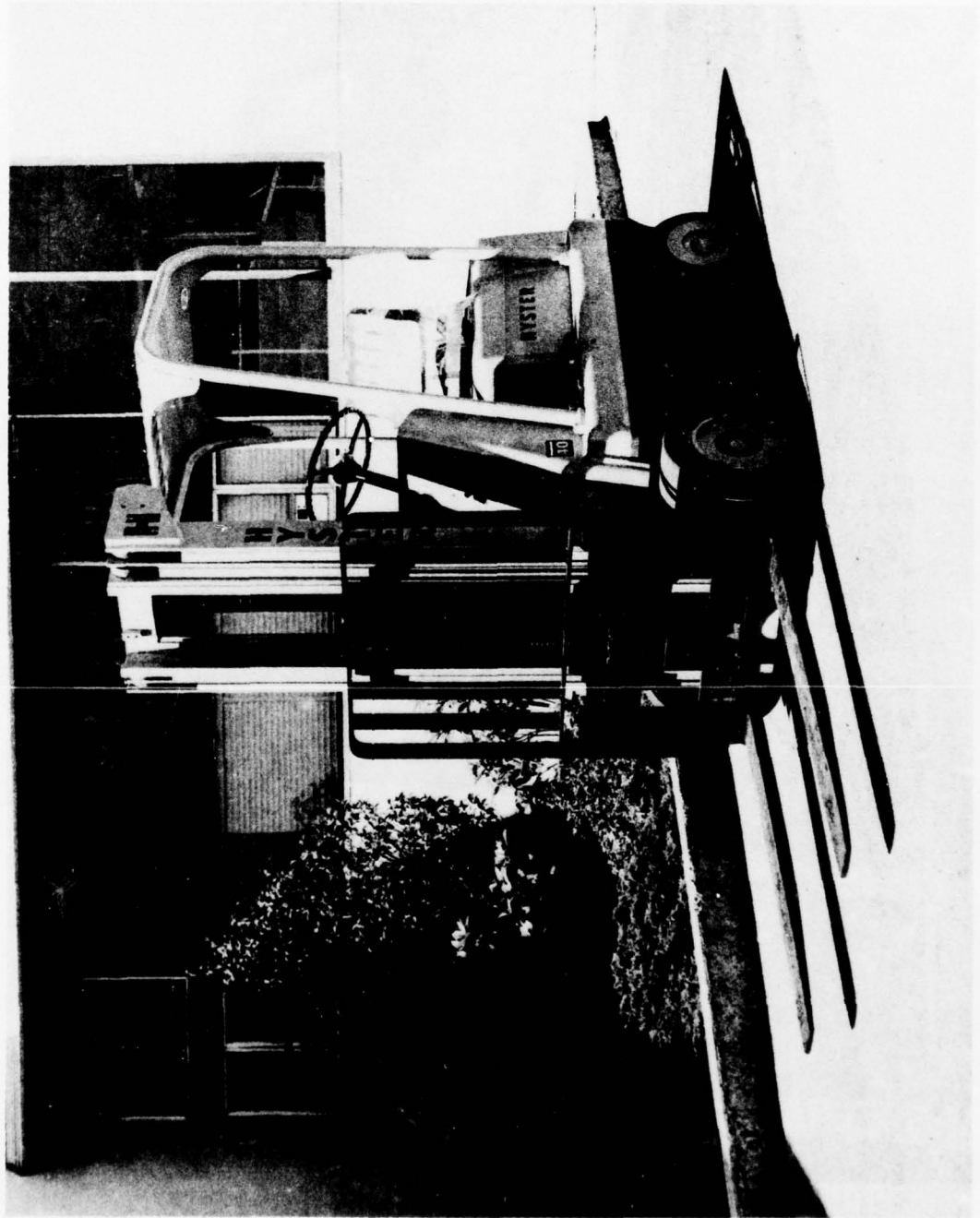


Figure 5. Hyster forklift truck similar to Model S50C.

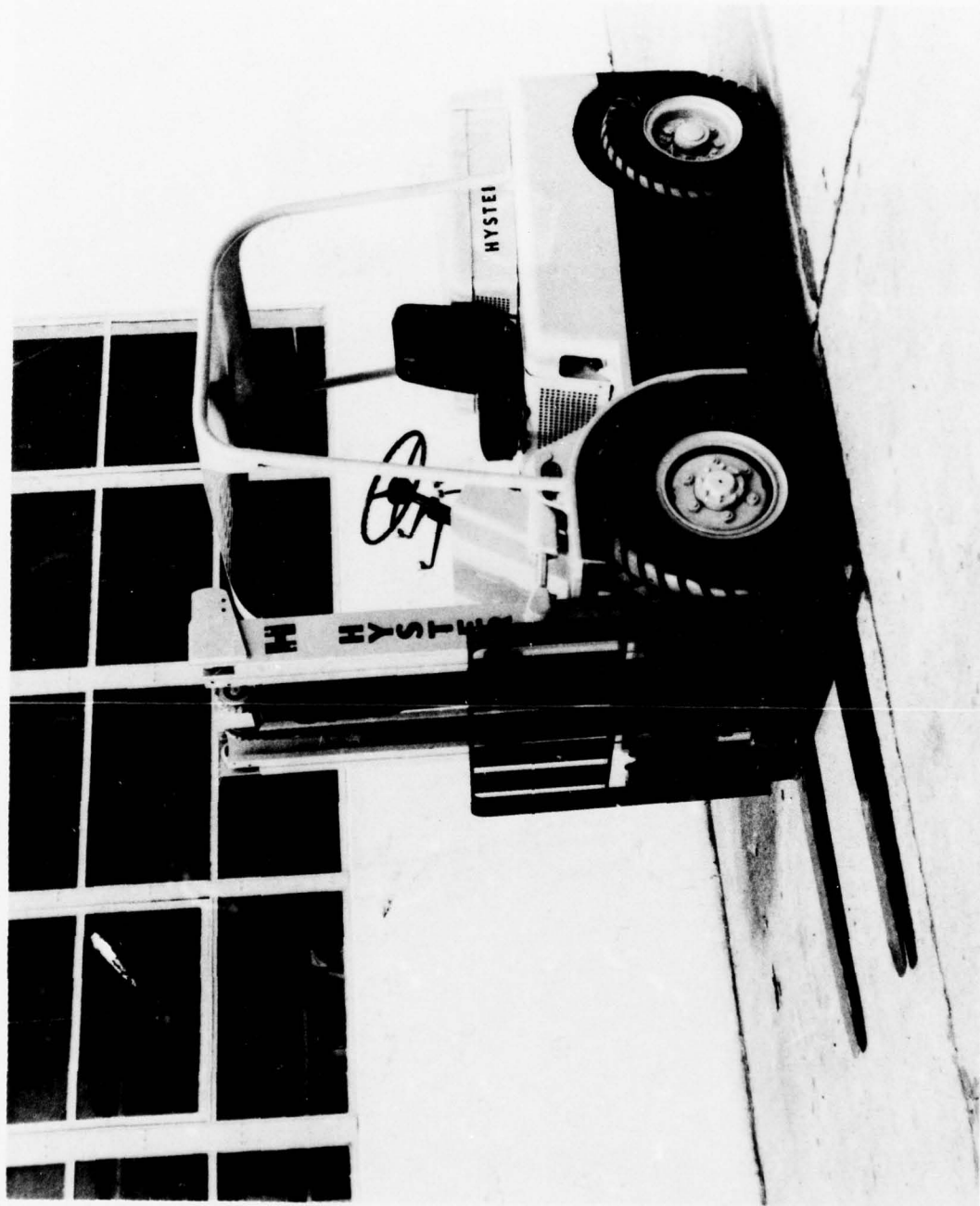


Figure 6. Hyster forklift truck, Model H70C.

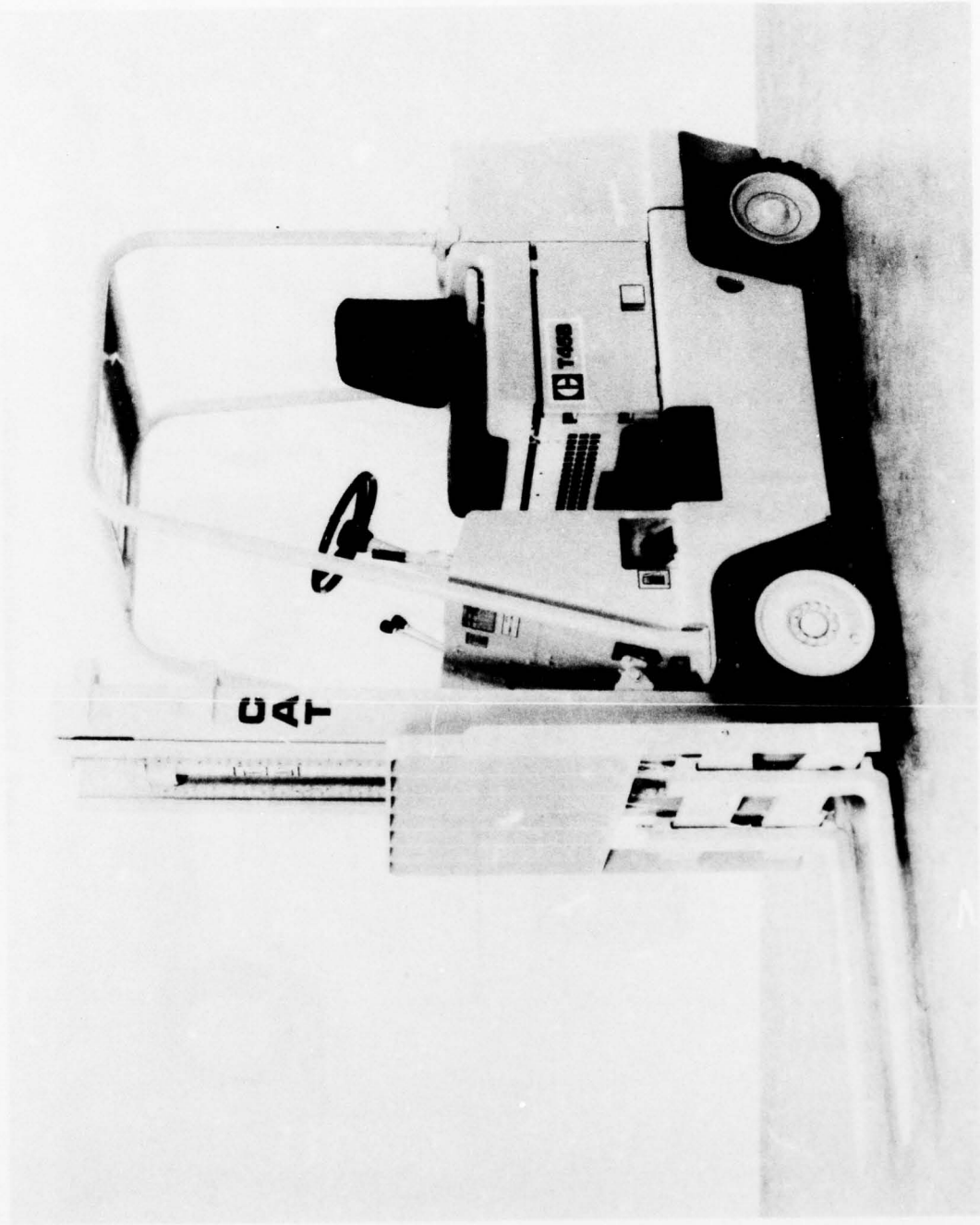


Figure 7. Towmotor forklift truck similar to Model T40B.

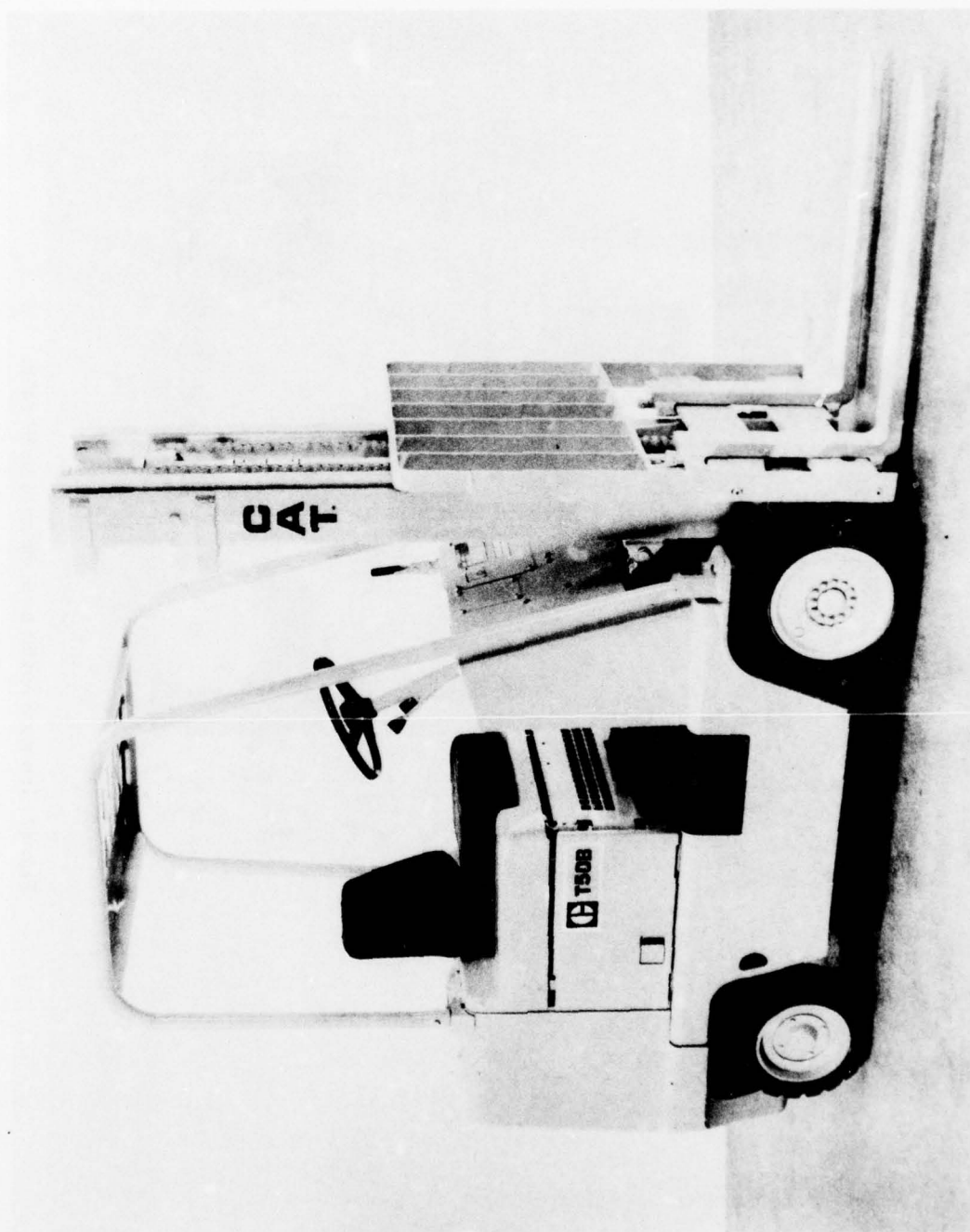


Figure 8. Towmotor forklift truck, Model T50B.

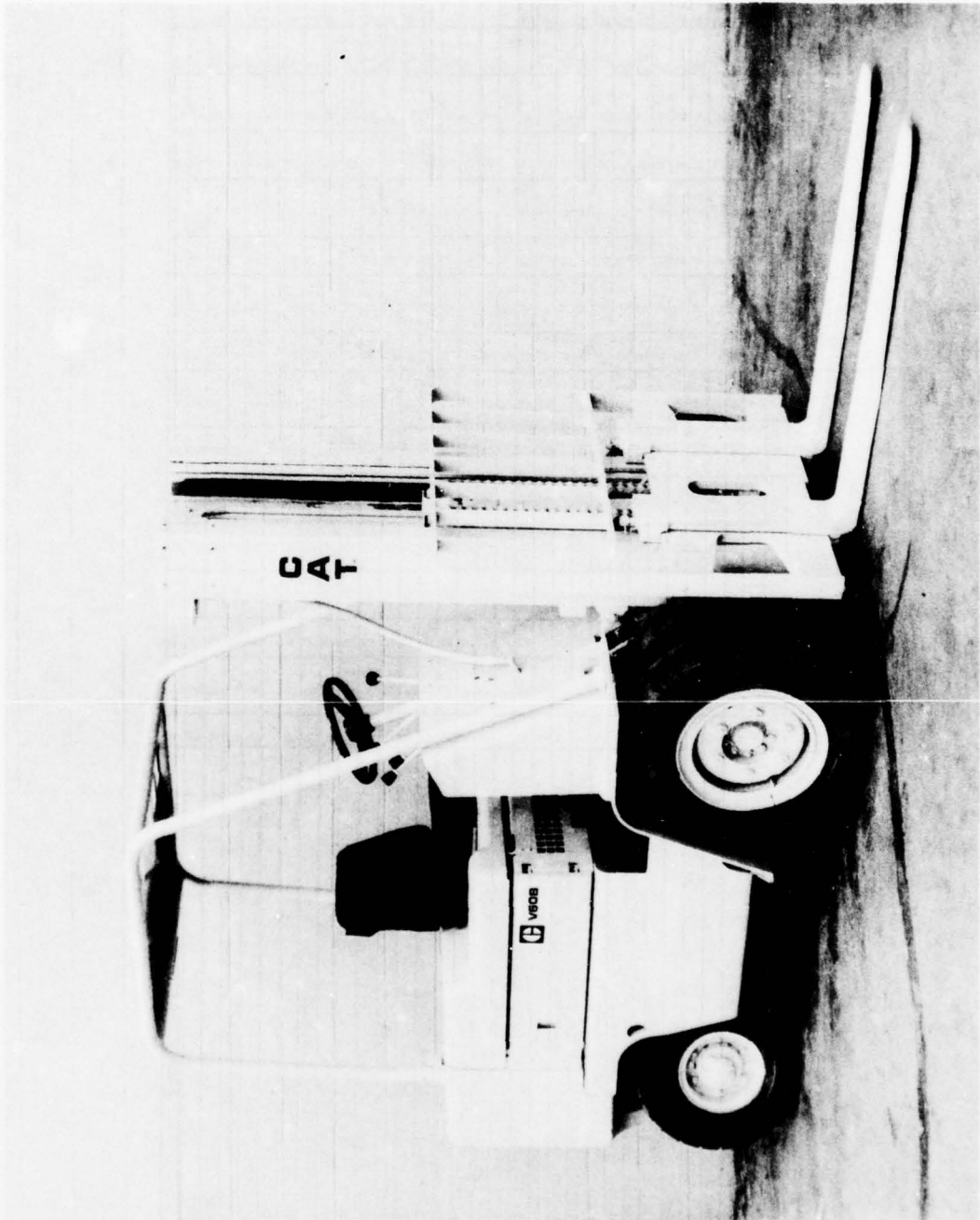


Figure 9. Towmotor forklift truck, Model V60B.



Table 2. Comparison of Standard Optional Features

	6000-lb Cap. @ 180-in. Lift Height										4000-lb Cap. @ 144- and 180-in. Lift Heights										4000-lb Cap. @ 144-in. Lift Height	4000-lb Cap. @ 180-in. Lift Height
	Clark I	II	AC	II	I	II	Hyster	Towmotor	Clark I	II	AC	II	I	II	Hyster	Towmotor	Clark I	II	AC	II	I	II
Misc. Equipment																						
1. Alternator Indicator Light	N	N	N	N	N	N	N	SF	N	N	N	N	N	N	N	SF	N	N	N	N	SF	N
2. Ammeter	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
3. Voltmeter	N	N	N	N	N	N	N	SF	N	N	N	N	N	N	N	SF	N	N	N	N	SF	N
4. Engine Hourmeter	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
5. Engine Oil Pressure Gauge	S	S	S	S	S	S	S	SF	N	N	N	N	S	S	S	SF	N	N	N	N	SF	N
6. Engine Oil Low-Pressure Warning Light	N	N	O	N	N	S	S	S	S	S	O	N	S	S	S	S	S	S	O	N	SF	N
7. Engine Coolant Temperature Gauge	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
8. Engine Coolant High-Temperature Warning Light	N	N	O	N	N	N	N	SF	N	N	N	N	O	N	N	N	N	N	N	N	SF	N
9. Transmission Oil Temperature Gauge	N	N	N	N	N	N	N	SF	N	N	N	N	N	N	N	SF	N	N	N	N	SF	N
10. Transmission Oil High-Temperature Warning Light	S	S	O	N	S	S	S	S	O	N	O	N	S	S	S	S	SF	N	S	S	SF	N
11. Fuel Gauge	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
12. Air Cleaner Restriction Indicator	O	N	O	N	N	S	S	S	O	N	O	N	N	N	N	S	S	S	O	N	S	S
13. Hydraulic Filter Restriction Warning Light																						
14. Key Ignition Switch	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
15. 12-Volt Electrical System	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
16. Instrument Panel Lights	N	N	N	N	N	N	N	SF	N	N	N	N	N	N	N	SF	N	N	N	N	SF	N
17. Individual Light Switches	O	S	O	N	N	N	N	SF	S(1)	O	N	N	N	N	N	SF	S(1)	O	N	N	SF	S(1)
18. Directional Signals	N	N	N	N	N	N	N	SF	N	N	N	N	N	N	N	SF	N	N	N	N	SF	N
19. Flashing Warning Lights	O	N	O	N	N	N	N	SF	N	N	O	N	N	N	N	SF	N	N	O	N	SF	N
20. Front Travel Lights	N	N	O	N	N	N	N	SF	N	N	O	N	N	N	N	SF	N	N	O	N	SF	N
21. Front Flood Lights	O	S(1)	O	N	O	S	S(1)	SF	S(1)	O	N	O	N	O	S	S(1)	SF	S(1)	O	N	SF	S(1)
22. Rear Backup Lights	N	N	O	N	N	N	N	SF	N	O	N	N	N	N	N	SF	N	N	N	N	SF	N
23. Electrical Circuit Breakers	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
24. Electrical Fuses	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
25. Stop/Tail Light																						
26. Radiator Guard	S	S	S	S	S	S	S	SF	S(1)	SF	N	S	S	S	S	SF	S(1)	SF	N	S	S	S
27. Spark-Arresting Muffler	O	N	O	N	S	S	S	S	O	N	N	N	N	N	S	S	S	S	N	N	S	S
28. Seat Belt	N	N	N	N	N	N	N	SF	N	SF	N	N	N	N	N	SF	N	N	N	N	SF	N
29. Horn	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
30. Protecto Seal Fuel Filler Cap.	S	S	S	S	N	N	N	S	S	S	S	S	N	N	N	S	S	S	S	N	S	S

Table 2. Comparison of Standard Optional Features (Cont'd)

6000-lb Cap. @ 180-in. Lift Height												4000-lb Cap. @ 144- and 180-in. Lift Heights												4000-lb Cap. @ 144-in. Lift Height							
Clark				AC				Hyster				Towmotor				Clark				AC				Hyster				Towmotor			
I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II				
O	N	O	N	O	N	N	N	N	N	N	N	SF	N	N	N	O	N	N	N	N	N	N	N	SF	N	SF	N				
S	S	S	S	S	S	N	N	N	N	N	N	S	S	S	S	S	S	S	S	N	N	N	S	S	S	S	S				
S	S	S	S	S	S	N	N	N	N	N	N	S	S	S	S	S	S	S	S	N	N	N	S	S	S	S	S				
						N	N	S	S	S	N	N	N	N	N	N	N	N	N	S	S	S	S	S	S	S	S				
N	N	S	S	S	S	N	N	N	NA	NA	S	S	S	S	S	N	N	N	N	N	N	N	NA	NA	NA	NA	NA				
O	N	O	N	O	N	N	N	N	N	N	SF	N	N	N	N	N	N	N	N	N	N	N	SF	N	SF	N	N				
O	N	O	N	O	N	N	N	N	N	N	SF	N	N	N	N	N	N	N	N	N	N	N	SF	N	SF	N	N				
O	N	O	N	O	N	N	N	N	N	N	SF	N	N	N	N	N	N	N	N	N	N	N	SF	N	SF	N	N				
S	S					N	N	N	NA	NA	N	N	N	N	N	N	N	N	N	N	N	N	NA	NA	NA	NA	NA				
Tempatrol												Asbestos																			
Fan												Asbestos																			
Control												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler												Asbestos																			
Muffler																															

NOTE: Number in ( ) denotes quantity furnished.

LEGEND:

Column I

S - Standard  
O - Optional  
N - Not Available  
SF - Special Feature

Column II

S - Will be supplied  
N - Will not be supplied





Type	Clark Non-Resist.	AC 18.8	Hyster DNF	Towmotor Non-Resist. 18 mm	Clark Non-Resist.	AC Resistor	Hyster	Towmotor Non-Resist.	Towmotor Non-Resist.
Ignition Wires Mfg.	Auto Lite	London Harness	Delco-Pack	Packard	London Coil	Radio Supp.	Resistance	Packard	Packard
Type	7MM High Tension Cable	6K to 10K ohms	Resistance	TVRS	Non-Radio Supp.	Radio Supp.	Resistance	TVRS	TVRS
Resistance per foot (rated)	NA		3K to 7K ohms	13K/ohms	NA	3K to 10K ohms	3K to 7K ohms	13K/ohms	13K/ohms
Distributor Mfg.	Prestolite	Prestolite	Delco-Remy	Prestolite	Prestolite	Prestolite	Delco-Remy	Prestolite	Prestolite
Ignition Coil Mfg.	Delco-Remy	Delco-Remy	Gen. Mtrs.	Prestolite	Delco-Remy	Delco-Remy	Gen. Mtrs.	Prestolite	Prestolite
Muffler Mfg.	Nelson	Nelson	DNF	Nelson	Nelson	Int. Baffle	DNF	Nelson	Nelson
Type	Multi-pass	Std. automatic	DNF	Baffled	Tube & Baffle	Int. Baffle	DNF	Baffled	Baffled
Cooling System Type	Water	Water	Water	Water-Press.	Liquid	Water	Water-Press.	Liquid-Press	Liquid-Press
Capacity	15 qts.	14 qts.	16 qts.	16 qts.	11.5 qts.	9 qts.	10 qts.	11 qts.	11 qts.
Type Antifreeze	Perm.	Perm.	Perm.	Perm.	Perm.	Perm.	Perm.	Perm.	Perm.
Radiator Mfg.	Modine	Chromalloy	Modine	McCord	Long	Gen. Rad. Div.	Modine	Long Gen.	Long Gen.
Type	Fin & Tube	Fin & Tube	Canted Tube	Tube & Fin	Core & Fin	Tube & Fin	Canted Tube	Tube & Fin	Tube & Fin
Capacity	DNF	6.5 qts.	DNF	DNF	DNF	4 qts.	DNF	DNF	DNF
Water Pump Mfg.	TCM	TCM	TCM	TCM	TCM	TCM	TCM	TCM	TCM
Capacity GPM @ RPM	48 @ 3000	46 @ 2400	Not given	76 @ 2700	34 @ 2500	46 @ 2400	Eaton	76 @ 2700	76 @ 2700
Thermostat Mfg.	Harrison Rad.	Continental (Opt.)	Eaton	Robt. Shaw	Harrison Rad.	TCM		Robert Shaw	Robert Shaw
Temp. Range (Open & Closed)	176-183/ 202	Open @ 180° F	167-182° F	167-182° F	175-202° F	180° F	167-182° F	178-200° F	178-200° F
Fan Belt Mfg.	Gates	Dayco	Gates	Towmotor	Dayco	Dayco	Gates	Gates	Gates
Type	Auto V-Belt	"	DNF	Poly	V Belt Auto	V Belt Auto	DNF	DNF	DNF
Alternator Belt Mfg.	Gates	Dayco	Gates	Neoprene	Dayco	Dayco	Gates	Gates	Gates
Type	"	"	"	"	"	"	"	"	"
Engine Lub. Sys. Type Cyl. Lub.	Spray	Spray	Splash	Spray	Splash & Pressure	Splash	Splash	Splash	Splash
Type Main Bearing Lub.	Full Press.	Pressure	Pressure	Pressure	Pressure	Full Press.	Pressure	Full Press.	Full Press.
Operating Pressure At Max. Speed	20-30 PSI	30 PSI	30 PSI	30 PSI	30-40 PSI	30-40 PSI	50 PSI	30 PSI	30 PSI
Operating Pressure At Idle	7 PSI	7 PSI	20 PSI	5 PSI	7 PSI	7 PSI	10 PSI	5 PSI	5 PSI
Capacity	6 qts.	5 qts.	7 qts.	6 qts.	4 qts.	4.5 qts.	4 qts.	5 qts.	5 qts.

Oil Type	CLARK Dexron Auto.	AC Dexron ATF	HYSTER DNF	TOMMOTOR NA	CLARK Dexron Auto.	AC ATF-Type A	HYSTER DNF	TOMMOTOR NA	TOMMOTOR NA
Oil Capacity (qts.)	DNF	1	DNF	NA	15	11	DNF	NA	NA
Transmission Mfr.	Clark	Warner Gear	Hyster	Tomotor	Clark	Warner Gear	Hyster	Tomotor	Tomotor
Type	Hydrator	Constant	Two Speed	Hydrostatic	Hydrator	Constant	Powershift	Hydrostatic	Hydrostatic
No. of Speeds Fwd/Rev	2/2	2/2	2/2	Inf/Inf	1/1	1/1	1/1	Inf/Inf	Inf/Inf
Oil Capacity (qts.)	15	10	12	13	15	11	12	13	13
Oil Type	Dexron Auto.	Dexron ATF	Dexron	Type F Auto	Dexron	ATF	Dexron	Type F Auto	Type F
Type Oil Cooling	Radiator	Radiator	Water To Oil	Air to Oil	Radiator	Radiator	Water over oil	Water to Oil	Water to Oil
Transmission Inching	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Transmission Disconnect	No	No	No	Yes	Yes	Neutral or Remove Floor Shift	No	Yes	Yes
Filter Element(s) Mfr.	Fram-Per.	Fram	AC Div CM	Gresen	Fram-Per.	AC	Fram	UCC Int.Ltd.	UCC Int.
Location	Eng. Comp.	Veh. Frame	Side of Trans.	Frame Mtd.	Eng. Mtd.	Under Seat Deck	L. H. Cyl. Head	Frame Mtd.	Frame Mtd.
Filtration Range (Micron)	10-15	10	25	10	10-15	15	15	10	10
Drive or Propeller Shafts Mfr.	NA	Borg-Warner	GN Birfield	Borg-Warner	NA	Borg-Warner	NA	Mechanics	Mechanics
Type	NA	Two Joint	Inboard Slide	Cardan Non-Constant	NA	Two-Joint	NA	Cardan Non-Constant	Cardan Non-Constant
Universal Joints (No. & Type)	NA	Outbd.	Del Cardan	Constant Vel	NA	Outbd. Slip	NA	Constant Vel	Constant Vel
Front Axle Mfr.	Clark	Two Cardan	Joint	Two Cardan	NA	2 Cardan Mech	NA	2 Cardan Type	2 Cardan
Driven	Yes	AC	Rockwell	Tomotor	Clark	AC	Rockwell	Tomotor	Tomotor
Type	DNF	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Type Suspension	Rigid	Full Floating	Full Floating	Full Floating	DNF	Del. Reduction	Multiple Pinion Full Floating	Full Floating	Full Floating
Rear Axle Mfr.	Clark	Rigid	DNF	Rigid	Rigid	Rigid	Rigid	Rigid	Rigid
Driven	No	AC	Hyster	Tomotor	Clark	AC	Hyster	Tomotor	Tomotor
Type	Steer Axle	Steer Axle	Steer Axle	Steer Axle	Rigid	Oscillating	No	NA	NA
Type Suspension	Silent Block	Center Pivot	Unsprung	Sprung	DNF	Oscillating	Unsprung	Sprung	Sprung
Front Wheel Mfr.	Budd	Goodyear	Multiple	Bearcat	Clark	AC	Unsprung	Tomotor	Tomotor
Tire Size	8.25 X 15	8.25 X 15	8.25 X 15	8.15 X 15	18 X 8 X 12.125	18 X 8 X 12.125	18 X 9 X 12	18 X 7 X 12 1/8	18 X 7 X 12 1/8
Ply Rating	12	12	12	12	NA	NA	NA	NA	NA

No. Tires per Axle	CLARK	AC	HYSTER	TOMOTOR	CLARK	AC	HYSTER	TOMOTOR	TOMOTOR
Wheel Loading (Unloaded) Lbs.	3227	2	2	2	2	2	2	2	2
Wheel Loading ('padded) Lbs.	8249	2781	2750	2470	1760	1540	1760/1850	2050	2050
Rear Wheel Mfg.	Bearcat	8185	9000	7479	5180	5185	5365/5455	5704	5704
Tire Size	7.00 X12	Geneva	Multiple Source	Geneva	Clark	AC	Multiple Source	Tommotor	Tommotor
Ply Rating	12	7.50 X 10	7.00 X 12	6.50 X 10	18 X 5 X	16.25 X 5 X	16 X 6 X	16 X 45 X	16 X 45 X
No. Tires per Axle	2	10	12	10	NA	NA	NA	NA	NA
Wheel Loading (Unloaded) Lbs.	3117	3512	3300	2723	2000	2420	2400/2390	2391	2391
Steering System Type	Power	Power	Power	Power	Power	Power	Power	Power	Power
Separate Power Steering Pump	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pump Mfg.	Vickers	Webster	Vickers	Eaton	Vickers	Tyrone Hyd.	NA	NA	NA
Max. Sys. Press. (PSI)	1750	1500	1000	925	1250	1000	1200	1000	1000
Steering Wheel Dia. (In)	17	17	17	15	15	17	17	15	15
No. Turns to Lock	4.6	3.5	3.25	3.5	4.5	3.5	3.5	4	4
Braking System Mfg.	Goodyear	Bendix	Wagner	Bendix	Clark	AC	Rockwell	Rockwell	Rockwell
Front Brakes	Disc	Drum	Drum	Drum	Drum	Drum	Drum	Drum	Drum
Rivited	Disc	Bonded	DNF	No Fill In	Bonded	Bonded	Bonded	Bonded	Bonded
Lining	8.38	12.5	DNF	11.12	8.0	9.71	9.5 sq.in.	11.5	11.5
Length (In)	4.38	2.25	2.5	2.25	3.0	1.75	2.25	1.50	1.50
Width (In)	DNF	.375	DNF	.31	.260	.25	.25	.25	.25
Thickness (In)	Self Adj.	Manual	Self Adj.	Self Adj.	Manual	Self Adj.	Manual	Self adj.	Self adj.
Type Adjustment	Yes	No	No	No	No	No	No	No	No
Power Assisted	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Method of Actuation	None	None	None	None	None	None	None	None	None
Rear Brakes	Wagner	Bendix	Minnesota	Wagner	Wagner	Wagner	Minnesota	Wagner	Wagner
Master Brake Valve Mfg.	Bendix	Bendix	Orscheln	Kelsey Hayes	Orscheln	AC	Orscheln	Kelsey Hayes	Kelsey H.
Parking Brake Mfg.	Band	Shoe	Shoe	Mech. Cal.	Band	Exp. Shoe	Friction	Mech. Cal.	Mech. Cal.
Type	Lever	Lever	Lever	Lever	Lever	Lever	Lever	Lever	Lever
Type of Actuation	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes
Locking Device	Trans. Drive	Drive Shaft	Wheels	Drive Shaft	Transmission	Diff. Shaft	Transmission	Drive Shaft	Drive Shaft
Location of Brake	Shaft	Left Hand	Right Hand	Left Foot	Left Hand	Left Hand	Right Foot	Left Foot	Left Foot
Directional Control Actuation	Steer Col.	Steer Col.	Steer Col.	Floor	Steer Col.	Steer Col.	Floor	Floor	Floor
Location	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand
Lift Control Actuation	Steer Col.	Rt. of Drivers	Off Drivers	Dash	Cowl	Rt. Side	Oprs. Rt.	Dash	Dash
Location	Steer Col.	Drivers Seat	Rt. Hand			Cowl Frt.	Hand		



Oil Filter Mfr.	CLARK	AC	AC (Opt.)	HYSTER	TOWMOTOR	CLARK	AC	HYSTER	TOWMOTOR	TOWMOTOR
	Purolator	AC	Partial Flow	Fram	Purolator	Fram-Puro.	AC	Fram	Purolator	Purolator
Type	Bypass	Partial Flow	Partial Flow	Partial Flow	Partial Flow	Partial Flow	Partial Flow	Partial Flow	Partial Flow	Partial Flow
Filtration Range (Micron)	Nom. 10	Nom. 10	Nom. 10	DNF	10	DNF	10	DNF	10	10
Battery Mfr.	Prestolite	Elec. Stor.	Elec. Stor.	Delco-Remy	Gould	Prestolite	Elec. Stor.	Delco-Remy	Gould	Gould
	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
Ground	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Conform to SAE J337	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hold-Downs Furnished	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hold-Downs & Incl. Acid Resist.	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes
Alternator Mfr.	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-R.
Rated Output	37 @ 6000	37 @ 6000	32 @ DNF	32 @ DNF	37 @ 5000	37 @ 5000	37 @ 6500	DNF @ 2400	37 @ 5000	37 @ 5000
Ground	Neg.	Neg.	Neg.	DNF	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
Waterproofing	No	No	No	No	Opt.	None	No	DNF	Opt.	Opt.
Fungus Proofing	No	Inherently Resistant	No	No	Opt.	None	Inherently Resistant	DNF	Opt.	Opt.
RPM at No-Load Gov. Speed	7320	6942	5800	5800	5025	6195	6410	4790	5035	5035
Voltage Reg. Mfr.	None	Delco-Remy	GM	GM	Delco-Remy	Delco-Remy	Integral With Alter.	Delco-Remy	Delco-Remy	Delco Remy
Type	In Alt.	Integral w/ Alternator	Separate	Separate	Solid State Int.	Integral	Alternator	Separate	Integral	Integral
Starter Motor Mfr.	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-R.
Type	Wet Clutch	Encl. Shift Lever	DNF	DNF	10 MT 100	Enclosed	DNF	DNF	10 MT 100	10 MT 100
Fan Mfr.	Ser. Prod. Corp.	Ser. Prod. Corp.	Schwitzer	Schwitzer	Schwitzer	Ser. Prod.	Ser. Prod.	Hyster	Schwitzer	Schwitzer
Type	Blower	Blower	Pusher	Pusher	Blower	Blower	Blower	Suction	Blower	Blower
Dia./No. of Blades/Fitch	19/5/32°30'	17/6/30°	17.5/5/	17.5/5/	15/6/30°	15.5/6/40°	16/6/30°	16/5/20°	15/6/30°	15/6/30°
Viscous Drive	Yes	No	No	No	Optional	Yes	Non. Std.	No	Optional	Optional
Fuel Tank Mfr.	Part of Frame	AC	Hyster	Hyster	Towmotor	Clark	AC	Hyster	Towmotor	Towmotor
Capacity (gals.)	16.2	15	12.8	12.8	9.3	8.6	6.5	8.0	8.0	8.0
Shut-Off Valve	Yes	No	No	No	Yes	Yes	Yes	No	Yes	Yes
Engine Operate on Lead-Free Gasoline	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Torque Converter Mfr.	Borg & Beck	Borg & Beck	Borg & Beck	Borg & Beck	NA	Long	Borg & Beck	Borg & Beck	NA	NA
Size No.	1-11	L-11	DNF	DNF	NA	11.0"	S-11TC	DNF	NA	NA
Max. Input Torque LB.FT. RPM	160@1460	164@1500	DNF	DNF	NA	90	116@1400	DNF	NA	NA
Input Torque Rating LB.Ft. RPM	250@1460	250	DNF	DNF	NA	2.5	250@5500	DNF	NA	NA
Torque Convert. Stall Speed	1460	1500	1050	1050	NA	1424	1640	1050	NA	NA
Eng. Vac. @ Torque Conv. Stall Speed	1 In HG.	DNF	DNF	DNF	NA	0-2.5	DNF	DNF	NA	NA

	CLARK	CLARK	AC	HYSTER	TOMMOTOR	CLARK	AC	HYSTER	TOMMOTOR	TOMMOTOR
Tilt Control Actuation	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand
Location	Steering Col.	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand
Side Shift Control Actuation	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Standard or Optional	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seat Conform to SAE J899	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seat Covered w/Vinyl	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall Length w/o Forks (In)	110.75	113.4	112.3	106	106	87.88	82.25	86.0	92.0	93.5
Overall Width Single Dr./Dual Dr.	49.93/68.43	53.0/DNF	54.3/DNF	47.5/DNF	47.5/DNF	38.0/DNF	40.0/DNF	41.0/DNF	43.0/DNF	45.0/DNF
Overhead Guard Ht.	87.25	87.0	83.0	88	88	83.3	83.0	82.6	81.0	81.0
Collapsed Mast Ht.	90.5	87.69	92.0	85	85	71.0/83.0	67.25/79.25	70.0/82.0	68.0	80.0
Max. Fork Ht.	183	182.0	194.0	186	186	152.0/188.0	145.75/181.75	151.5/187.5	147	182
Free Lift Height	67.0	40.5	44.0	57	57	50.0/62.0	47.15/59.5	49.5/59.5	44	59
Wheel Base	69.0	65.0	65.0	66	66	53.0	50.0	51.0	52	56
Drive Tire Tread Width L to L	40.75	43.38	44.4	38.8	38.8	33.5	32.0	32.0	36	37
Steer Tire Tread Width L to L	42.62	41.0	42.5	34.62	34.62	32.0	31.5	34	33.5	33.5
Clearance of Drive Tires to Body	2.0	DNF	2.5	2.75	2.75	2.0	1.5	1.0	1.0	1.0
Maximum Ground Clearance	5.0	6.25	5.0	5.5	5.5	3.0	3.25	3.3	3.0	3.0
Lifting Speed (Rated Load) FPM	66	74	70	75	75	60	87	63	84.0	84.0
Lowering Speed (Rated Load) FPM	60	70	110	105	105	67	70	95	105.0	105.0
Travel Speed w/Rated Load MPH	12.7	12	7.5/16.4	12	12	DNF	9.2	8.5	9.5	9.5
Forward w/Without Load-MPH	13.7	12	7.5/16.4	12	12	8.7	9.2	8.5	9.5	9.5
Rearward MPH	DNF	12	8.3/18.2	12	12	8.7	9.2	2.7	9.5	9.5
Slope Ascension w/Rated Load Fed	30.8%	41.6%	35.0%	16.5%	16.5%	21.9%	31.3%	25%	21.5%	20.5%
Without Load	28.5%	25.0%	25.0%	18-26%	18-26%	22.7%	20.0%	17%	21.5/15.5%	23.0/16.5%
Stability Forward Stacking	5.25%	6.58%	8.0%	4.8%	4.8%	7.0%	7.08%	8%/16%	6.4%	7.1%
Lateral Stacking	7.0%	7.49%	17.0%	7.4%	7.4%	9.0%	9.17%	11%/9%	12.3%	10.4%
Forward Travel	18.5%	24.41%	30.0%	21.8%	21.8%	29.4%	23.68%	23%/22%	23.9%	27.4%
Lateral Travel	48.5%	DNF	62.0%	61.4%	61.4%	34.1%	40.00%	38%/38%	69.1%	68.9%
Noise Level-No Load Gov. Speed (dB(A) 88-90	88-90	91	96	Max. dB(A) in any mode is 89	Max. dB(A) in any mode is 89	93	91	95 @ 2400 RPM	Max. dB(A) in any mode is 89	Max. dB(A) in any mode is 89
At Torque Convert. Stall	88-90	83	DNF	DNF	DNF	84	83	DNF	95 @ 2400 RPM	95 @ 2400 RPM
Lifting Rated Load @ Max. Speed	88-90	Not avail.	98	is 89	is 89	83	Not Avail.	2400 RPM	is 89	89

	CLARK	AC	HYSTER	TOMMOTOR	CLARK	AC	HYSTER	TOMMOTOR	TOMMOTOR
Hydraulic System Reservoir Cap	15 gals.	11.3 gals.	12.5 gals.	24 gts.	6.3 gals.	5.0 gals.	7.0 gals.	5.0 gals.	24 gts.
Oil Level Indicator	Dipstick	Dipstick	Dipstick	Dipstick	Dipstick	Dipstick	Dipstick	Dipstick	Dipstick
Filter(s) Location	Inside Sump Tank	DNF	In Hyd. Tank	Return	Suction	DNF	Return	Return	Return
Type Filter	Suction	Return	Suction	DNF	DNF	Return	DNF	DNF	DNF
In accordance with ANSI B93.31	No	Yes	No	No	No	Yes	No	No	No
Replacement Indicator	No	Opt.	No	Opt.	No	No	Yes	Opt.	Opt.
Hydraulic Pump Mfr.	Vickers	Webster	Warner	Warner	Vickers	Tryone Hyd.	Vickers	Borg-Warner	Borg-Warner
Type	Vane	Gear	Vane	Gear	Vane	Gear	Vane	Gear	Gear
Capacity-GPM-PSI @ RPM	26-100-2400	22.8-2000-2600	30-1500-2600	17.7-100-2000	18-100-2350	24-0-2400	18-2050-2400	17.7-100-2000	23.7-100-2000
Relief Valve Mfr.	Vickers	Gresen	Control	Hannifin	Vickers	Vickers	Parker	Hyd. Unit Spec.	Hyd. Unit Spec.
Relief Valve Setting-PSI	2000	1950	1875	1900	2000	1900	2050	2100	2300
Hydraulic Cylinders Mfg.	Clark	Cascade/AC	Cascade	Tommotor	Clark	AC	Cascade	Tommotor	Tommotor
Piston Shaft Corrosion Plated	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tilt Anti-Cavitation Sys. Mfg.	Clark	DNF	Hyster	Hannifin	Clark	AC	Hyster	Hyd. Unit Spec	Hyd. Unit Spec
Type	Counter Bal.	Up Circuit	Over Center	Valve	Balance	Valve	Over Center	Valve	Valve
Load Lowering Control Mfr.	Fluid Control	Vonberg	Hyster	Waterman	Fluid Control	Vonberg	Hyster	Waterman	Waterman
Do Hoses Conform to SAE J517	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Max Roller Type	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rollers Permanently Lubricated	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Type Bearings	Ball	Ball	Roller	Ball	Ball	Ball	Roller	Ball	Ball
Type Chains Used	Rollerless	Rollerless	Leaf	Leaf	Leaf	Rollerless	Leaf	Leaf	Leaf
Fork & Fork Carriers Conform to ANSI B56.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fork Carrier Bearings Perm. Lubricated	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes
Type Bearings	Ball	Ball	Roller	DNF	N/A	Ball	Roller	Ball	Ball
Forks Slide Entire Width of Carrier	Yes	Yes	Yes	Yes	Yes	Yes	Not with shift	Yes	Yes
Forks Removable w/o Removing Backrest	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes
Fork Length (in.)	42	40	42	42	42	42	As reqd.	42.0	42.0
Fork Width (in.)	6.0	6.0	5.0	5.0	5.0	4	5.0	5.0	5.0
Backrest Ht. Above Forks (in)	48	48	47.8	48	48	48	49.2	48.0	48.0
Backrest Width (in.)	51	48	49.2	47.25	38	38	38.8	39.38	39.38



Protruding Bolts Beyond Side Plane									
CLARK	AC	HYSTER	TOMMOTOR	CLARK	AC	HYSTER	TOMMOTOR	HYSTER	TOMMOTOR
No	No	Yes	No	No	No	Yes	No	Yes	No
Optional	DNF	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes
4	4	NA	NA	4.0	4.0	4.0	4.0	4.0	4.0
4	4	NA	NA	4.0	4.0	4.0	4.0	4.0	4.0
Side Shifter Integral or Added On	Integral	NA	NA	Integral	Integral	NA	NA	Integral	Integral
Side Shifter Mfg	Clark	NA	NA	Clark	AC	NA	NA	Hyster	Tommotor
41-49-61	48	NA	NA	37	38.0	38.0	38.0	38.0	38.0
Type Bearings	Anti-Friction	NA	NA	Anti-Friction	Ball	Roller	Steel Backed Bronze Bush.	Steel Backed Bronze Bush.	Steel Backed Bronze Bush.
Bearings Perm. Lub.	Yes	NA	NA	Yes	Yes	Yes	No	Yes	No
Engine Mounted on Elastomer Shock Mount	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Non-slip walkway Coating Furnished	Yes	Yes	Floor Plates	Yes	Yes	Floor Plates	Yes	Floor Plates	Yes
Operator's Manual Furnished	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Maint. Manual Furnished	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Rebuild Manual Furnished	Optional	No	Yes	Optional	No	No	Yes	No	Yes
Repair Parts Manual Furnished	Optional	Yes	Yes	Optional	Yes	Yes	Yes	Yes	Yes
Lub. Manual Furnished	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Training Aids Manual	Optional	No	No	Optional	No	No	No	No	No
System of Upating & Rev. to Manuals	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Preservation & Pkg. for overseas	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Comm. Method for Indef. Storage	No	No	Yes	No	Yes	No	Yes	No	Yes
Tiedown Provisions	DNF	Yes(3)	Yes	DNF	Yes(3)	Opt(SF)	Yes	Spec. Feature	4
Lifting Provisions	DNF	None	Yes	DNF	None	Opt(4)	Yes	4 std. opt.	4
Conform to MIL-STD-209	No	NA	No(SF)	NA	NA	DNF	DNF	DNF	DNF

Legend: DNF - Did Not Furnish.

## **APPENDIX A**

### **BASELINE ITEM DESCRIPTIONS FOR THE FORKLIFT TRUCKS**

A-1. Item Description for Forklift Truck, Warehouse, 4000-Lb-Capacity, Gasoline-Engine-Driven, Solid-Rubber Tires, 144-Inch Fork Height

A-2 Item Description for Forklift Truck, Warehouse, 4000-Lb-Capacity, Gasoline-Engine-Driven, Solid-Rubber Tires, 180-Inch Fork Height

A-3 Item Description for Forklift Truck, Warehouse, 6000-Lb-Capacity, Gasoline-Engine-Driven, Pneumatic Tires, 180-Inch Fork Height

**A-1. ITEM DESCRIPTION FOR FORKLIFT TRUCK, WAREHOUSE,  
4000-LB-CAPACITY, GASOLINE-ENGINE-DRIVEN, SOLID-RUBBER-TIRES,  
144-INCH FORK HEIGHT**

1. **Scope.** This description covers a commercial model warehouse, sit-down rider, counterbalanced forklift truck equipped with a gasoline engine, with a powershift or hydrostatic transmission with a triple-stage roller mast including 4 inches of sideshift each side of center with power steering and with solid-rubber tires. The forklift shall be the latest model of the standard commercial product of the supplier and shall have been in production, marketed, and in use for a minimum of one year prior to the Step I technical proposal opening date. The introduction of normal product improvement changes in this one-year period is acceptable.

2. **Requirements.**

2.1 **General.** The warehouse forklift truck shall be equipped with standard instruments, components, and accessories normally required for the safe and effective operation of the truck. The truck shall be complete with all components that are *standard with the supplier's products, whether stipulated herein or not*, together with such accessories as may be specified herein. The truck shall be equipped with all other components and parts not specifically mentioned but necessary to provide a functional machine and shall conform in quality to that normally provided to the commercial industry.

2.2 **Operating Temperature.** The truck shall start without preheating and shall be designed for operation in any ambient from 0°F to plus 110° F.

2.3 **Safety.** The truck shall conform to the requirements of ANSI B 56.4, Type G and ANSI B 56.1.

2.4 **Load Capacity.** The forklift truck shall have a rated capacity of 4,000 pounds at 24-inch load center when the forks are raised to maximum fork height.

2.5 **Fork Height.** The forklift truck shall have a fork height of not less than 144 inches when measured from the ground to the top surface of the forks, with the upright in true vertical position and rated load on the forks.

2.6 **Collapsed Mast Height.** The forklift truck shall have a collapsed mast height of not more than 68 inches above ground measured with the upright in true vertical.

2.7 **Overall Height.** The forklift truck shall have an overall height including overhead guard of not more than 83 inches when the lift mechanism is in the fully lowered position.

**2.8 Free Lift Height.** The forklift truck shall be capable of raising the forks a minimum of 42 inches without any portion of the mast exceeding 68 inches.

**2.9 Slope Ascension.** With and without rated load, the forklift truck shall be capable of ascending a 20% grade on a dry concrete surface.

**2.10 Forks and Fork Carrier.** The forks shall be a minimum of 40 inches long. The forks and fork carrier shall conform to ANSI MH 11.4. The fork carrier shall be a minimum of 32 inches wide and shall be free of obstructions to allow the forks to slide across the entire width of the carrier.

**2.11 Load Backrest.** The truck shall be equipped with a load backrest, flush with the forward vertical surface of the forks, and shall be at least equal to the width of the carriage and at least 48 inches above the load-carrying surface of the forks. There shall be no protruding bolts or appendages beyond the side plane of the load backrest.

**2.12 Right-Angle Turn Dimension.** The right-angle turn dimension shall be a maximum of 150 inches when carrying rated load on a 48 in. x 48 in. load base.

**2.13 Travel Speed.** The truck shall be capable of attaining 8-mph minimum speed while carrying rated load.

**2.14 Lifting Speed.** Speed of lift with rated load shall be not less than 60 feet per minute.

**2.15 Upright Tilt.** Upright tilt shall be a minimum 2° forward and a minimum 6° rearward without load. Anticavitation means shall be furnished in the hydraulic tilt system.

**2.16 Electrical System.** The forklift truck shall be equipped with an automatic starter disconnect and a neutral-start interlock.

**2.17 Instruments.** The forklift shall be furnished with the following instruments:

- a. Hour meter.
- b. Ammeter, voltmeter, or red alternator indicator light.
- c. Fuel gauge.
- d. Engine oil pressure gauge or warning light.
- e. Engine coolant temperature gauge or warning light.

**2.18 Lights.** The forklift shall be furnished with the following lights:

- a. One adjustable sealed-beam floodlamp.
- b. One automotive, red, reflector-type, combination stop-and-tail light.

**A-2. ITEM DESCRIPTION FOR FORKLIFT TRUCK, WAREHOUSE,  
4000-LB-CAPACITY, GASOLINE-ENGINE-DRIVEN,  
SOLID-RUBBER TIRES, 180-INCH FORK HEIGHT**

1. **Scope.** This description covers a commercial model warehouse, sit-down rider, counterbalanced forklift truck, equipped with a gasoline engine, with a powershift or hydrostatic transmission with a triple-stage roller mast including 4 inches of sideshift each side of center with power steering and with solid-rubber tires. The forklift shall be the latest model of the standard commercial product of the supplier and shall have been in production, marketed, and in use for a minimum of one year prior to the Step I technical proposal opening date. The introduction of normal product improvement changes in this one-year period is acceptable.

2. **Requirements.**

2.1 **General.** The warehouse forklift truck shall be equipped with standard instruments, components, and accessories normally required for the safe and effective operation of the truck. The truck shall be complete with all components that are standard with the supplier's products, whether stipulated herein or not, together with such accessories as may be specified herein. The truck shall be equipped with all other components and parts not specifically mentioned but necessary to provide a functional machine and shall conform in quality to that normally provided to the commercial industry.

2.2 **Operating Temperature.** The truck shall start without preheating and shall be designed for operation in any ambient from 0° to plus 100°F.

2.3 **Safety.** The truck shall conform to the requirements of ANSI B 56.4, Type G and ANSI B 56.1.

2.4 **Load Capacity.** The forklift truck shall have a rated capacity of 4,000 pounds at 24-inch load center when the forks are raised to maximum fork height.

2.5 **Fork Height.** The forklift truck shall have a fork height of not less than 180 inches when measured from the ground to the top surface of the forks, with the upright in true vertical position and rated load on the forks.

2.6 **Collapsed Mast Height.** The forklift truck shall have a collapsed mast height of not more than 83 inches above ground measured with the upright in true vertical.

2.7 **Overall Height.** The forklift truck shall have an overall height including overhead guard of not more than 83 inches when the lift mechanism is in the fully lowered position.



**2.8 Free Lift Height.** The forklift truck shall be capable of raising the forks a minimum of 57 inches without any portion of the mast exceeding 83 inches.

**2.9 Slope Ascension.** With and without rated load, the forklift truck shall be capable of ascending a 20% grade on a dry concrete surface.

**2.10 Forks and Fork Carrier.** The forks shall be a minimum of 40 inches long. The forks and fork carrier shall conform to ANSI MH 11.4. The fork carrier shall be a minimum of 32 inches wide and shall be free of obstructions to allow the forks to slide across the entire width of the carrier.

**2.11 Load Backrest.** The truck shall be equipped with a load backrest, flush with the forward vertical surface of the forks, and shall be at least equal to the width of the carriage and at least 48 inches above the load-carrying surface of the forks. There shall be no protruding bolts or appendages beyond the side plane of the load backrest.

**2.12 Right-Angle Turn Dimension.** The right-angle turn dimension shall be a maximum of 150 inches when carrying rated load on a 48 in. x 48 in. load base.

**2.13 Travel Speed.** The truck shall be capable of attaining 8-mph minimum speed while carrying rated load.

**2.14 Lifting Speed.** Speed of lift with rated load shall be not less than 60 feet per minute.

**2.15 Upright Tilt.** Upright tilt shall be a minimum 2° forward and a minimum 6° rearward without load. Anticavitation means shall be furnished in the hydraulic tilt system.

**2.16 Electrical System.** The forklift truck shall be equipped with an automatic starter disconnect and a neutral-start interlock.

**2.17 Instruments.** The forklift shall be furnished with the following instruments:

- a. Hour meter.
- b. Ammeter, voltmeter, or red alternator indicator light.
- c. Fuel gauge.
- d. Engine oil pressure gauge or warning light.
- e. Engine coolant temperature gauge or warning light.

**2.18 Lights.** The forklift shall be furnished with the following lights:

- a. One adjustable sealed-beam floodlamp.
- b. One automotive, red, reflector-type, combination stop-and-tail light.

**A-3. ITEM DESCRIPTION FOR FORKLIFT TRUCK, WAREHOUSE,  
6000-LB-CAPACITY, GASOLINE-ENGINE-DRIVEN,  
PNEUMATIC TIRES, 180-INCH FORK HEIGHT**

**1. Scope.** This description covers a commercial model warehouse, sit-down rider counterbalanced forklift truck, equipped with a gasoline engine, with a powershift or hydrostatic transmission with a triple-stage roller mast with power steering and with pneumatic tires. The forklift shall be the latest model of the standard commercial product of the supplier and shall have been in production, marketed, and in use for a minimum of one year prior to the Step I technical proposal opening date. The introduction of normal product improvement changes in this one-year period is acceptable.

**2. Requirements.**

**2.1 General.** The warehouse forklift truck shall be equipped with standard instruments, components, and accessories normally required for the safe and effective operation of the truck. The truck shall be complete with all components that are standard with the supplier's products, whether stipulated herein or not, together with such accessories as may be specified herein. The truck shall be equipped with all other components and parts not specifically mentioned but necessary to provide a functional machine and shall conform in quality to that normally provided to the commercial industry.

**2.2 Operating Temperature.** The truck shall start without preheating and shall be designed for operation in any ambient from 0°F to plus 110°F.

**2.3 Safety.** The truck shall conform to the requirements of ANSI B 56.4, Type G and ANSI B 56.1.

**2.4 Load Capacity.** The forklift truck shall have a rated capacity of 6,000 pounds at 24-inch load center when the forks are raised to maximum fork height.

**2.5 Fork Height.** The forklift truck shall have a fork height of not less than 180 inches when measured from the ground to the top surface of the forks, with the upright in true vertical position and rated load on the forks.

**2.6 Collapsed Mast Height.** The forklift truck shall have a collapsed mast height of not more than 91 inches above ground measured with the upright in true vertical.

**2.7 Overall Height.** The forklift truck shall have an overall height including overhead guard of not more than 91 inches when the lift mechanism is in the fully lowered position.

**2.8 Free Lift Height.** The forklift truck shall be capable of raising the forks a minimum of 57 inches without any portion of the mast exceeding 91 inches.

**2.9 Slope Ascension.** With and without rated load, the forklift truck shall be capable of ascending a 20% grade on a dry concrete surface.

**2.10 Forks and Fork Carrier.** The forks shall be a minimum of 40 inches long. The forks and fork carrier shall conform to ANSI MH 11.4. The fork carrier shall be a minimum of 48 inches wide and shall be free of obstructions to allow the forks to slide across the entire width of the carrier.

**2.11 Load Backrest.** The truck shall be equipped with a load backrest, flush with the forward vertical surface of the forks, and shall be at least equal to the width of the carriage and at least 48 inches above the load-carrying surface of the forks. There shall be no protruding bolts or appendages beyond the side plane of the load backrest.

**2.12 Right-Angle Turn Dimension.** The right-angle turn dimension shall be a maximum of 196 inches when carrying rated load on a 48 in. x 48 in. load base.

**2.13 Travel Speed.** The truck shall be capable of attaining 12-mph minimum speed while carrying rated load.

**2.14 Lifting Speed.** Speed of lift with rated load shall be not less than 60 feet per minute.

**2.15 Upright Tilt.** Upright tilt shall be a minimum 2° forward and a minimum 6° rearward without load. Anticavitation means shall be furnished in the hydraulic tilt system.

**2.16 Electrical System.** The forklift truck shall be equipped with an automatic starter disconnect and a neutral-start interlock.

**2.17 Instruments.** The forklift shall be furnished with the following instruments:

- a. Hour meter.
- b. Ammeter, voltmeter, or red alternator indicator light.
- c. Fuel gauge.
- d. Engine oil pressure gauge or warning light.
- e. Engine coolant temperature gauge or warning light.

**2.18 Lights.** The forklift shall be furnished with the following lights:

- a. One adjustable sealed beam floodlamp.
- b. One automotive, red, reflector-type, combination stop-and-tail light.

## **APPENDIX B**

### **TECHNICAL INFORMATION PACKAGE FOR TRUCKS, LIFT, FORK, GASOLINE-ENGINE-DRIVEN 4000- TO 6000-POUND-CAPACITY**

#### **PREFACE TO THE TECHNICAL INFORMATION PACKAGE**

1. **Purpose:** The purpose of this Technical Information Package is to provide a reference document suitable for evaluation of Commercial Material Handling Equipment.
2. **Application.** This Technical Information Package will be utilized in the evaluation of the technical characteristics of commercial material handling equipment which is being considered as replacement for commercial modified equipment used by the Army.
3. **Instructions:**
  - a. Only one specific make and model shall be entered in any one Technical Information Package.
  - b. The offerer shall include two copies of the current commercial specification data sheets affixed behind the front cover of this Technical Information Package.
  - c. Two 8 x 10 glossy photographs of the manufacturer's candidate item shall be affixed behind the front cover of this Technical Information Package.
  - d. All data in this Technical Information Package shall apply to the manufacturer's candidate item equipped as proposed by the contractor to meet the requirements of the Item Description.

DATE \_\_\_\_\_  
MANUFACTURER \_\_\_\_\_  
MAKE \_\_\_\_\_  
MODEL \_\_\_\_\_

EVALUATORS:

\_\_\_\_\_  
NAME

\_\_\_\_\_  
ORGANIZATION

\_\_\_\_\_  
NAME

\_\_\_\_\_  
ORGANIZATION

\_\_\_\_\_  
NAME

\_\_\_\_\_  
ORGANIZATION

MANUFACTURER'S  
REPRESENTATIVES:

\_\_\_\_\_  
NAME

\_\_\_\_\_  
ORGANIZATION

\_\_\_\_\_  
NAME

\_\_\_\_\_  
ORGANIZATION

\_\_\_\_\_  
NAME

\_\_\_\_\_  
ORGANIZATION

MANUFACTURER'S REPRESENTATIVE SIGNATURE \_\_\_\_\_



## TABLE OF CONTENTS

SECTION	TITLE	PAGE
I	Specifications, General	1
II	Specifications, Engine & Engine Accessories	1
III	Specifications, Power Train	6
IV	Specifications, Steering & Brakes	8
V	Specifications, Operator's Compartment	9
VI	Specifications, Dimensional	11
VII	Specifications, Performance	13
VIII	Miscellaneous Equipment	14
IX	Specifications, Hydraulic System	15
X	Specifications, Uprights, Forks, Fork Carrier, & Load Backrest	19
XI	Miscellaneous	21
XII	Product Reliability	22
XIII	Operator, Maintenance, & Parts Manual	23
XIV	Specifications, Lubrication	24
XV	Quality Assurance System	25
XVI	Preparation for Delivery	26
XVII	Specifications, Transportability	28
XVIII	Logistic Support Data	29
XIX	Deployment Data	30

## SECTION I.

### SEPCIFICATIONS, GENERAL

1. MANUFACTURER\_\_\_\_\_
2. MODEL NUMBER AND NAME\_\_\_\_\_
3. COMPLETE NOMENCLATURE\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. DATE MODEL MARKETING\_\_\_\_\_

## SECTION II.

### SPECIFICATIONS, ENGINE AND ENGINE ACCESSORIES

1. MANUFACTURER\_\_\_\_\_  
Model\_\_\_\_\_  
Type\_\_\_\_\_  
Part Number\_\_\_\_\_  
End Item Manufacturer's Part No.\_\_\_\_\_
2. NUMBER OF CYLINDERS\_\_\_\_\_
3. BORE (in.)\_\_\_\_\_
4. STROKE (in.)\_\_\_\_\_
5. TOTAL DISPLACEMENT (cu. In.)\_\_\_\_\_
6. COMPRESSION RATIO\_\_\_\_\_
7. GROSS HORSEPOWER\_\_\_\_\_ at \_\_\_\_\_ rpm
8. INTERMITTENT HORSEPOWER\_\_\_\_\_ at \_\_\_\_\_ rpm
9. CONTINUOUS HORSEPOWER\_\_\_\_\_ at \_\_\_\_\_ rpm
10. MAXIMUM GOVERNED HORSEPOWER\_\_\_\_\_ at \_\_\_\_\_ rpm
11. NET HORSEPOWER\_\_\_\_\_ at \_\_\_\_\_ rpm

Determined by manufacturer with all accessories necessary for engine to perform its intended function in accordance with SAE Standard J816.

12. MAXIMUM TORQUE (lb ft)\_\_\_\_\_at\_\_\_\_\_rpm

13. DOES ENGINE CONFORM TO THE CALIFORNIA CODE AS SET FORTH IN  
TITLE 8 OF THE CALIFORNIA ADMINISTRATIVE CODE\_\_\_\_\_

14. GOVERNED ENGINE SPEED (No Load)\_\_\_\_\_rpm

15. GOVERNOR

Manufacturer\_\_\_\_\_

Model\_\_\_\_\_

Type\_\_\_\_\_

Part Number\_\_\_\_\_

End Item Manufacturer's Part Number\_\_\_\_\_

16. AIR CLEANER

Manufacturer\_\_\_\_\_

Model\_\_\_\_\_

Part Number\_\_\_\_\_

End Item Manufacturer's Part Number\_\_\_\_\_

Restriction Indicator\_\_\_\_\_

Manufacturer\_\_\_\_\_

Model\_\_\_\_\_

Mounting Location\_\_\_\_\_

Type of Air Cleaner Hose Clamps Furnished\_\_\_\_\_

17. FUEL PUMP

Manufacturer\_\_\_\_\_

Part Number\_\_\_\_\_

End Item Manufacturer's Part Number\_\_\_\_\_

Does Fuel Pump Conform to ANSI B56.4\_\_\_\_\_

18. FUEL FILTERS

Manufacturer\_\_\_\_\_

Part Number\_\_\_\_\_

End Item Manufacturer's Part Number\_\_\_\_\_

Location\_\_\_\_\_

19. CARBURETOR

Manufacturer\_\_\_\_\_

Type\_\_\_\_\_

Part Number\_\_\_\_\_

End Item Manufacturer's Part Number\_\_\_\_\_

Do Carburetor and Associated Fuel Lines Conform to ANSI B56.4\_\_\_\_\_

Choke Actuation\_\_\_\_\_Manual\_\_\_\_\_Automatic\_\_\_\_\_

20. CRANKCASE VENTILATION SYSTEM

Manufacturer\_\_\_\_\_

Model\_\_\_\_\_

Type\_\_\_\_\_

21. SPARK PLUGS

Manufacturer\_\_\_\_\_

Type\_\_\_\_\_

Part Number\_\_\_\_\_

22. IGNITION WIRES

Manufacturer\_\_\_\_\_

Type\_\_\_\_\_

Resistance per Foot (Rated)\_\_\_\_\_

23. DISTRIBUTOR

Manufacturer\_\_\_\_\_

Part Number\_\_\_\_\_

Type\_\_\_\_\_

24. IGNITION COIL

Manufacturer\_\_\_\_\_

Part Number\_\_\_\_\_

25. MUFFLER

Manufacturer\_\_\_\_\_

Part Number\_\_\_\_\_

Type\_\_\_\_\_

Do Muffler and Piping Conform to ANSI B56.4\_\_\_\_\_

26. COOLING SYSTEM

Type\_\_\_\_\_

Capacity (U.S. Gallons)\_\_\_\_\_

Pressure (Operating)\_\_\_\_\_psi

Type of Antifreeze Furnished\_\_\_\_\_

27. RADIATOR

Manufacturer\_\_\_\_\_

Model\_\_\_\_\_

Type\_\_\_\_\_

Part Number\_\_\_\_\_

End Item Manufacturer's Part Number\_\_\_\_\_

Capacity\_\_\_\_\_qt

Radiator Construction (Fin and tube, barrel and tube, etc.)\_\_\_\_\_

\_\_\_\_\_

Number of fins/in.\_\_\_\_\_

Number of tubes\_\_\_\_\_

Core Length\_\_\_\_\_in. Core Width\_\_\_\_\_in. Core Thickness\_\_\_\_\_in.

28. WATER PUMP

Manufacturer\_\_\_\_\_

Part Number\_\_\_\_\_

Capacity\_\_\_\_\_gpm at\_\_\_\_\_rpm

29. THERMOSTAT

Manufacturer\_\_\_\_\_

Part Number\_\_\_\_\_

Temperature Range (Open and Closed)\_\_\_\_\_°F

30. FAN BELT

Manufacturer\_\_\_\_\_

Type\_\_\_\_\_

Part Number\_\_\_\_\_

31. ALTERNATOR BELT

Manufacturer\_\_\_\_\_

Type\_\_\_\_\_

Part Number\_\_\_\_\_



32. ENGINE LUBRICATION SYSTEM

Type Cylinder Lubrication\_\_\_\_\_

Type Main Bearing Lubrication\_\_\_\_\_

Operating Pressure\_\_\_\_\_

    at Idle Speed\_\_\_\_\_psi

    at Maximum Rated Speed\_\_\_\_\_psi

Capacity (qt)\_\_\_\_\_

33. OIL FILTER

Manufacturer\_\_\_\_\_

Type\_\_\_\_\_Full Flow (Bypass)\_\_\_\_\_Partial Flow

Part Number\_\_\_\_\_

End Item Manufacturer's Part Number\_\_\_\_\_

Filtration Range\_\_\_\_\_Micron

34. BATTERY

Manufacturer\_\_\_\_\_

Type\_\_\_\_\_

Model\_\_\_\_\_

Ground (positive or negative)\_\_\_\_\_

Battery Capacity\_\_\_\_\_

Does Battery conform to SAE J537\_\_\_\_\_

\_\_\_\_\_

Are battery hold-downs furnished (Yes or No)\_\_\_\_\_

Is battery hold-down and inclosure acid-resistant? (Yes or No)\_\_\_\_\_

35. ALTERNATOR

Manufacturer\_\_\_\_\_

Type\_\_\_\_\_

Model\_\_\_\_\_

Rated Output\_\_\_\_\_amps\_\_\_\_\_rpm

Ground (positive or negative)\_\_\_\_\_

Waterproofing\_\_\_\_\_

\_\_\_\_\_

Fungusproofing\_\_\_\_\_

\_\_\_\_\_

- Protection against reverse polarity\_\_\_\_\_
- Alternator rpm at Engine No-Load Governed Speed\_\_\_\_\_
36. VOLTAGE REGULATOR
- Manufacturer\_\_\_\_\_
- Type\_\_\_\_\_
- Part Number\_\_\_\_\_
- Location (integral or separate)\_\_\_\_\_
37. STARTER MOTOR
- Manufacturer\_\_\_\_\_
- Type\_\_\_\_\_
- Part Number\_\_\_\_\_
38. FAN
- Manufacturer\_\_\_\_\_
- Type (Suction, blower)\_\_\_\_\_
- Diameter\_\_\_\_\_in. No. of Blades\_\_\_\_\_Pitch\_\_\_\_\_
- Part Number\_\_\_\_\_
- Viscous Drive\_\_\_\_\_
39. FUEL TANK
- Manufacturer\_\_\_\_\_
- Capacity\_\_\_\_\_gal.
- Does Fuel Tank Conform to ANSI B56.4\_\_\_\_\_
- Does Fuel Tank Location Conform to ANSI B56.4\_\_\_\_\_
- Is Tank Equipped with a Shut-Off Valve\_\_\_\_\_
40. Is engine designed to operate on lead-free gasoline?\_\_\_\_\_

### SECTION III

#### SPECIFICATIONS, POWER TRAIN

##### 1. TORQUE CONVERTER

Manufacturer\_\_\_\_\_

Part Number\_\_\_\_\_

Size\_\_\_\_\_

Maximum Input Torque\_\_\_\_\_ (lb ft) at \_\_\_\_\_ rpm

Input Torque Rating\_\_\_\_\_ (lb ft) at \_\_\_\_\_ rpm

Maximum Stall Torque Ratio\_\_\_\_\_

\* Torque Converter Stall Speed\_\_\_\_\_ rpm

\*Engine Vacuum at Torque Converter Stall Speed\_\_\_\_\_ in. hg

Oil Type\_\_\_\_\_

Oil Capacity (U.S. Qt)\_\_\_\_\_

\*NOTE: Stall Speed for tractors is at rated DBP.

##### 2. TRANSMISSION

Manufacturer\_\_\_\_\_

Model\_\_\_\_\_

Type\_\_\_\_\_

No. of Speeds\_\_\_\_\_ fwd \_\_\_\_\_ rev

Oil Capacity (qt)\_\_\_\_\_

Oil Type\_\_\_\_\_

Type Oil Cooling\_\_\_\_\_

Transmission Inching Provided\_\_\_\_\_

Transmission Disconnect Provided\_\_\_\_\_

<u>Gear Ratios</u>	<u>Fwd</u>	<u>Fwd—mph</u>	<u>Rev</u>	<u>Rev—mph</u>
First	_____	_____	_____	_____
Second	_____	_____	_____	_____
Third	_____	_____	_____	_____

Input Torque Rating\_\_\_\_\_ (lb ft) at \_\_\_\_\_ rpm

Filter Element (s)

Manufacturer\_\_\_\_\_

Part Number\_\_\_\_\_

End Item Manufacturer's Part Number\_\_\_\_\_

Type\_\_\_\_\_

Physical Location (s)\_\_\_\_\_

Filtration Range\_\_\_\_\_ microns

3. DRIVE OR PROPELLER SHAFTS

Manufacturer\_\_\_\_\_

Model\_\_\_\_\_

Type (Ref SAE J901)\_\_\_\_\_

Universal Joints (Number and Type)\_\_\_\_\_

Torque Capacity (lb ft)\_\_\_\_\_

4. FRONT AXLE

Manufacturer\_\_\_\_\_

Model\_\_\_\_\_

Driven\_\_\_\_\_

Type (Drive Axle Only)\_\_\_\_\_ (Ref. SAE J923)

Capacity Rating

Torque\_\_\_\_\_ (lb ft)

Beam Load\_\_\_\_\_ lb

Type of Suspension\_\_\_\_\_ Sprung\_\_\_\_\_ Rigid

5. REAR AXLE

Manufacturer\_\_\_\_\_

Model\_\_\_\_\_

Driven\_\_\_\_\_

Type (Drive Axle Only)\_\_\_\_\_ (Ref. SAE J923)

Gear Reduction Ratio\_\_\_\_\_

Torque\_\_\_\_\_ (lb ft)

Beam Load\_\_\_\_\_ lb

Type of Suspension\_\_\_\_\_ Sprung\_\_\_\_\_ Rigid

6. FRONT WHEELS

Rim Type\_\_\_\_\_

Rim Size\_\_\_\_\_

Manufacturer\_\_\_\_\_

Tire Size and Ply Rating\_\_\_\_\_

Number of Tires per Axle\_\_\_\_\_

Wheel Loading (End Item Unloaded)\_\_\_\_\_lb

Wheel Loading (End Item w/Rated Load)\_\_\_\_\_lb

7. REAR WHEELS

Rim Type\_\_\_\_\_

Rim Size\_\_\_\_\_

Manufacturer\_\_\_\_\_

Tire Size and Ply Rating\_\_\_\_\_

Number of Tires per Axle\_\_\_\_\_

Wheel Loading (End Item Unloaded)\_\_\_\_\_lb

Wheel Loading (End Item w/Rated Load)\_\_\_\_\_lb



## SECTION IV

### SPECIFICATIONS, STEERING AND BRAKES

#### 1. STEERING SYSTEM

Type (Power or Manual)\_\_\_\_\_

Steering Control Unit Manufacturer\_\_\_\_\_

Part Number\_\_\_\_\_

Is separate power steering pump supplied? (Yes or No)\_\_\_\_\_

Pump Manufacturer\_\_\_\_\_

Part Number\_\_\_\_\_

Maximum System Pressure\_\_\_\_\_psi

Steering Wheel Diameter\_\_\_\_\_in.

No. of Turns Lock to Lock\_\_\_\_\_

#### 2. BRAKING SYSTEM

Front Brakes (None, Drum, Disc)\_\_\_\_\_

Manufacturer\_\_\_\_\_

Lining (Bonded, Riveted)\_\_\_\_\_

Length\_\_\_\_\_in. Width\_\_\_\_\_in. Thickness\_\_\_\_\_in.

Drum Diameter\_\_\_\_\_

Type of Brake Adjustment (Manual, Self-Adjusting)\_\_\_\_\_

Power Assisted (Yes or No)\_\_\_\_\_

Method of Actuation (Hydraulic, Vacuum, Etc.)\_\_\_\_\_

Rear Brakes (None, Drum, Disc)\_\_\_\_\_

Manufacturer\_\_\_\_\_

Lining (Bonded, Riveted)\_\_\_\_\_

Length\_\_\_\_\_in. Width\_\_\_\_\_in. Thickness\_\_\_\_\_in.

Drum Diameter\_\_\_\_\_

Type of Brake Adjustment (Manual, Self-Adjusting)\_\_\_\_\_

Power Assisted (Yes or No)\_\_\_\_\_

Method of Actuation (Hydraulic, Vacuum, etc.)\_\_\_\_\_

Master Brake Valve (Master Cylinder)

Manufacturer\_\_\_\_\_

Part Number\_\_\_\_\_

Parking Brake

Manufacturer\_\_\_\_\_

Type (Friction, Shoe, Shear, Band, etc.)\_\_\_\_\_

Type of Actuation (Lever, Sear)\_\_\_\_\_

Equipped with Locking Device (Yes or No)\_\_\_\_\_

Location of Brake (Wheels, Drive Shaft, Transmission, etc.)\_\_\_\_\_

\_\_\_\_\_

## SECTION V

### SPECIFICATIONS, OPERATORS COMPARTMENT

#### 1. DIRECTIONAL CONTROL

Actuation\_\_\_\_\_Left-Hand\_\_\_\_\_Right-Hand

Location\_\_\_\_\_

Position markings (Yes or No)\_\_\_\_\_

Type:\_\_\_\_\_Decal\_\_\_\_\_Embossed\_\_\_\_\_Embedded

Does forward actuation correspond to forward travel?

(Yes or No)\_\_\_\_\_

#### 2. LIFT CONTROL

Actuation\_\_\_\_\_Left-Hand\_\_\_\_\_Right-Hand

Location\_\_\_\_\_

Position markings (Yes or No)\_\_\_\_\_

Type:\_\_\_\_\_Decal\_\_\_\_\_Embossed\_\_\_\_\_Embedded

Does direction of motion conform to ANSI B56.1?

(Yes or No)\_\_\_\_\_

#### 3. TILT CONTROL

Actuation\_\_\_\_\_Left-Hand\_\_\_\_\_Right-Hand

Location relative to lift control\_\_\_\_\_

Position markings (Yes or No)\_\_\_\_\_

Type:\_\_\_\_\_Decal\_\_\_\_\_Embossed\_\_\_\_\_Embedded

Does direction of motion conform to ANSI B56.1?

(Yes or No)\_\_\_\_\_

#### 4. SIDE-SHIFT CONTROL

Actuation\_\_\_\_\_Left-Hand\_\_\_\_\_Right-Hand

Location relative to tilt control\_\_\_\_\_

Position markings (Yes or No)\_\_\_\_\_

Type:\_\_\_\_\_Decal\_\_\_\_\_Embossed\_\_\_\_\_Embedded

Does direction of motion conform to ANSI B56.1?

(Yes or No)\_\_\_\_\_

5. SEAT

Does seat conform to all the minimum dimensional requirements of SAE J899?

(Yes or No)\_\_\_\_\_

If no, specify which dimensions do not conform to SAE J899\_\_\_\_\_

Is seat covered with slip coated vinyl upholstery?

(Yes or No)\_\_\_\_\_

If not, specify type of covering furnished\_\_\_\_\_

6. DIMENSIONS

- a. Vertical distance between lowest point on steering wheel rim and highest point of the unoccupied seat cushion\_\_\_\_\_in.
- b. Height of seat above floorboard\_\_\_\_\_in.
- c. Height of floorboard above ground\_\_\_\_\_in.
- d. Height of first step above ground\_\_\_\_\_in.
- e. Distance between near edge of seat and parking brake\_\_\_\_\_in.
- f. Distance between inner edge of accelerator and brake pedal\_\_\_\_\_in.
- g. Dimensions of brake pedal\_\_\_\_\_in.

## SECTION VI

### SPECIFICATIONS, DIMENSIONAL

1. OVERALL LENGTH (without forks)\_\_\_\_\_in.
2. OVERALL WIDTH\_\_\_\_\_in.
3. OVERHEAD GUARD HEIGHT\_\_\_\_\_in.
4. COLLAPSED MAST HEIGHT\_\_\_\_\_in.
5. MAXIMUM FORK HEIGHT\_\_\_\_\_in.
6. FREE LIFT HEIGHT\_\_\_\_\_in.
7. WHEEL BASE\_\_\_\_\_in.
8. DRIVE TIRE TREAD WIDTH (c to c)\_\_\_\_\_in.
9. STEER TIRE TREAD WIDTH (c to c)\_\_\_\_\_in.
10. CLEARANCE OF DRIVE TIRES TO BODY\_\_\_\_\_in.
11. MINIMUM GROUND CLEARANCE\_\_\_\_\_in.
12. HEIGHT OF EXHAUST OUTLET\_\_\_\_\_in.
13. COMPLETE ALL DIMENSIONAL REQUIREMENTS IN FIGURE A-1.



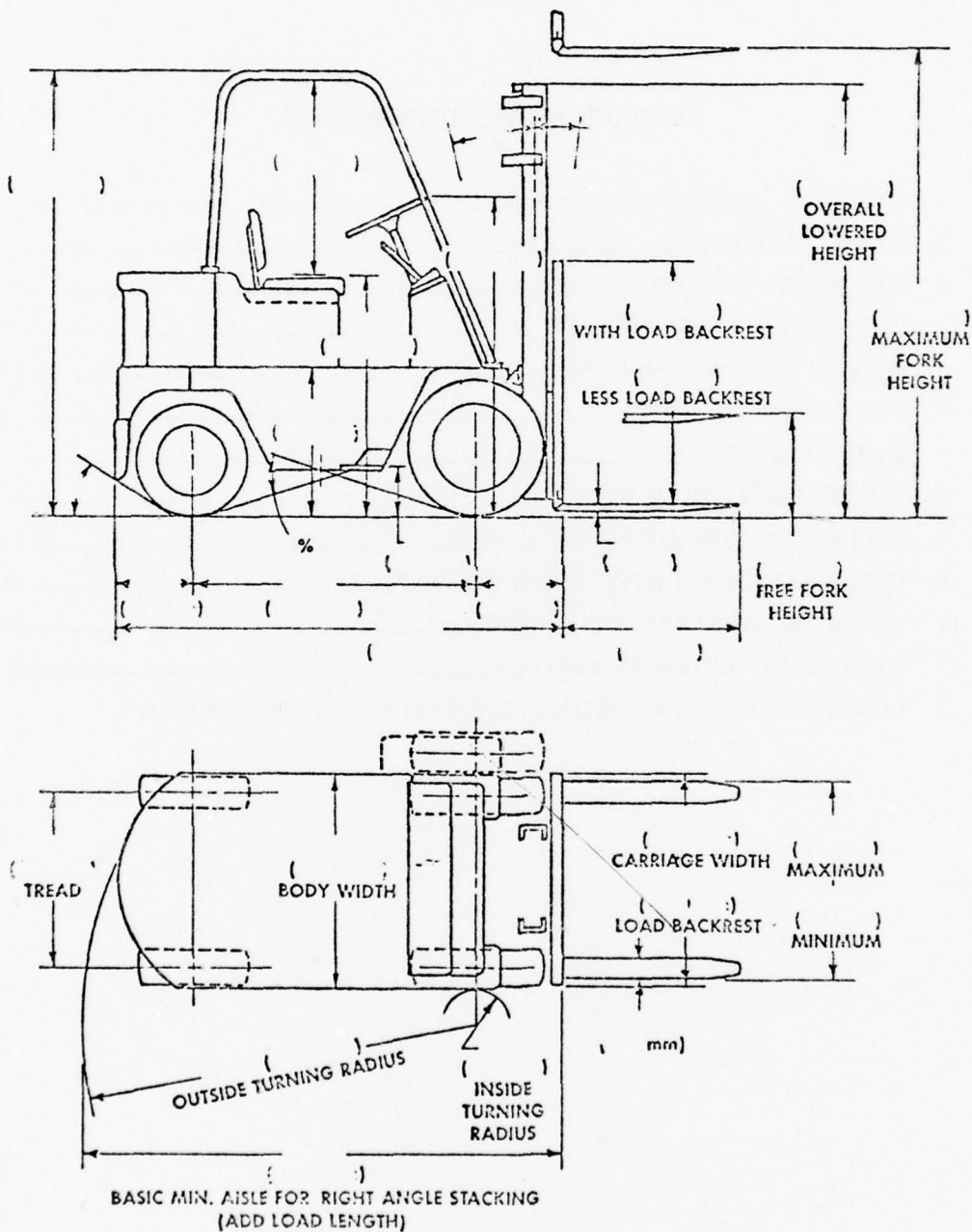


Figure A-1.

## SECTION VII

### SPECIFICATIONS, PERFORMANCE

1. Lifting Speed (rated load)\_\_\_\_\_ fpm
2. Lowering speed (rated load)\_\_\_\_\_ fpm
3. Travel speed with rated load\_\_\_\_\_ mph  
Forward\_\_\_\_\_ mph, Rearward\_\_\_\_\_ mph
4. Slope Ascension, forward direction  
With rated load\_\_\_\_\_ %, without load\_\_\_\_\_ %
5. Stability (reference ANSI B56.1)  
Forward stacking\_\_\_\_\_ %, forward travel\_\_\_\_\_ %  
Lateral stacking\_\_\_\_\_ %, lateral travel\_\_\_\_\_ %
6. Acceleration (40-foot distance, engine initially at low idle)\_\_\_\_\_ seconds
7. Vehicle Noise Levels (Microphone located 6 in. from operator's ear)  
At no-load governed speed\_\_\_\_\_ db (A)  
At torque converter stall\_\_\_\_\_ db(A)  
Lifting rated load at maximum speed\_\_\_\_\_ db (A)
8. Will the vehicle start and perform to manufacturer's specifications in temperatures ranging from 0°F to 110°F? (Yes or No)\_\_\_\_\_

## SECTION VIII

### MISCELLANEOUS EQUIPMENT

The purpose of this section is to determine: (1) What equipment is supplied as standard equipment, what is available as optional equipment, and what equipment is not available. Indicate in Column I below if the following is standard (S), optional (O), not available (N), or special feature (SF). (2) What equipment will be supplied on the end item as being proposed. Indicate in Column II below if the following will be supplied (S) or will not be supplied (N).

#### 1. INSTRUMENTATION

	I	II
Alternator Indicator Light	_____	_____
Ammeter	_____	_____
Voltmeter	_____	_____
Engine Hourmeter	_____	_____
Engine Oil Pressure Gauge	_____	_____
Engine Oil Low-Pressure Warning Light	_____	_____
Engine Coolant Temperature Gauge	_____	_____
Engine Coolant High-Temperature Warning Light	_____	_____
Transmission Oil Temperature Gauge	_____	_____
Transmission Oil High-Temperature Warning Light	_____	_____
Fuel Gauge	_____	_____
Air Cleaner Restriction Indicator	_____	_____
Other Warning Lights and Buzzers (specify)	_____	_____
_____	_____	_____
_____	_____	_____

#### 2. LIGHTS AND ELECTRICAL SYSTEM

(State Quantity of Lights when Applicable)	_____	_____
Key Ignition Switch	_____	_____
12-Volt Electrical System	_____	_____
(If other than 12-V system, state voltage)	_____	_____
Instrument Panel Lights	_____	_____

Individual Light Switches	_____	_____
Directional Signals	_____	_____
Flashing Warning Lights	_____	_____
Front Travel Lights	_____	_____
Front Flood Lights	_____	_____
Rear Backup Lights	_____	_____
Electrical Circuit Breakers	_____	_____
Electrical Fuses	_____	_____

3. PROTECTIVE AND SAFETY EQUIPMENT

Radiator Guard	_____	_____
Spark-Arresting Muffler	_____	_____
Seat Belt	_____	_____
Horn	_____	_____
Protecto Seal Fuel Filler Cap	_____	_____
Fire Extinguisher	_____	_____
Closed Cab	_____	_____
Neutral-Start Protective Switch	_____	_____
Starter Disconnect Switch to prevent starter engagement after engine has been started (Describe)_____		
_____		
_____		

4. OTHER

Spring Counterbalanced Hood	_____	_____
Positive Hood Hold-Open Device	_____	_____
Windshield Wiper(s) (How many?)	_____	_____
Cab Heater	_____	_____
Cab Defroster	_____	_____
Noise Control Provisions (Describe)	_____	_____
_____		
_____		
Electromagnetic radiation limits in accordance with SAE J551	_____	_____

## SECTION IX

### SPECIFICATIONS, HYDRAULIC SYSTEM

#### 1. RESERVOIR

Capacity \_\_\_\_\_ U.S. gal  
Oil level indicator: \_\_\_\_\_ gage \_\_\_\_\_ dipstick  
\_\_\_\_\_ sightglass \_\_\_\_\_ none  
Breather, Replaceable element (Yes or No) \_\_\_\_\_  
Micron rating \_\_\_\_\_  
Filler neck strainer (Yes or No) \_\_\_\_\_, \_\_\_\_\_ mesh  
Filler neck opening \_\_\_\_\_ in. diameter

#### 2. FILTER(S)

Location: \_\_\_\_\_ suction \_\_\_\_\_ return \_\_\_\_\_ pressure  
Manufacturer \_\_\_\_\_ part number \_\_\_\_\_  
End item manufacturer's part number \_\_\_\_\_  
Has filter been evaluated in accordance with ANSI B93.31 (Yes or No) \_\_\_\_\_  
If yes, Beta 10 ratio is \_\_\_\_\_ at \_\_\_\_\_ gpm  
If no, manufacturer's micron rating \_\_\_\_\_ at \_\_\_\_\_ gpm  
Filter replacement indicator (Yes or No) \_\_\_\_\_  
Where located \_\_\_\_\_  
Inlet port type \_\_\_\_\_ Outlet port type \_\_\_\_\_

#### 3. STRAINER(S)

Is strainer(s) furnished? (Yes or No) \_\_\_\_\_  
Location \_\_\_\_\_  
Manufacturer \_\_\_\_\_ part number \_\_\_\_\_  
End item manufacturer's part number \_\_\_\_\_  
Filtration rating \_\_\_\_\_ mesh, or \_\_\_\_\_ micron

#### 4. HYDRAULIC PUMP

Manufacturer \_\_\_\_\_  
Type (vane, gear, piston, etc.) \_\_\_\_\_  
Model \_\_\_\_\_ Part Number \_\_\_\_\_



End item manufacturer's part number \_\_\_\_\_  
Capacity \_\_\_\_\_ gpm \_\_\_\_\_ psi @ \_\_\_\_\_ rpm (governed speed)  
Inlet port type \_\_\_\_\_ pressure port type \_\_\_\_\_

5. RELIEF VALVE

Location \_\_\_\_\_  
Manufacturer \_\_\_\_\_ part number \_\_\_\_\_  
System relief valve setting \_\_\_\_\_ psi

6. CONTROL VALVE

Manufacturer \_\_\_\_\_ part number \_\_\_\_\_  
Model \_\_\_\_\_  
Inlet port type \_\_\_\_\_ cylinder port type \_\_\_\_\_  
Outlet port type \_\_\_\_\_  
Exposed spools corrosion plated? (Yes or No) \_\_\_\_\_

7. HYDRAULIC CYLINDERS

<u>Cylinder Function</u>	<u>Lift</u>	<u>Tilt</u>	<u>Sideshift</u>
Manufacturer			
Mfr Part Number			
End Item Mfr Part Number			
Port Type			
Piston Shaft Corrosion Plated			

8. TILT ANTICAVITATION SYSTEM

Type (overcenter valve, orifice, etc.) \_\_\_\_\_  
Manufacturer \_\_\_\_\_ Model \_\_\_\_\_  
Part Number \_\_\_\_\_  
End item mfr part number \_\_\_\_\_

9. LOAD LOWERING CONTROL

Describe provision furnished to control lowering load in the event of any hose failure \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Manufacturer\_\_\_\_\_Model\_\_\_\_\_

End item mfr part number\_\_\_\_\_

10. SYSTEM PLUMBING

Does hose conform to SAE J517? (Yes or No)\_\_\_\_\_

If not, which hoses do not?\_\_\_\_\_

List all hose inside diameters used\_\_\_\_\_

Does pressure tubing conform to SAE J524 or J525 (Yes or No)\_\_\_\_\_

List all tubing sizes used\_\_\_\_\_

Are all fittings, other than suction fittings, either 37° flare, "O" ring boss, or 4-bolt split-flange (Yes or No)\_\_\_\_\_

If no, describe\_\_\_\_\_

Describe suction line fittings\_\_\_\_\_

11. HOSE REELS

Manufacturer\_\_\_\_\_part number\_\_\_\_\_

Is hose reel mounted within plan outline of the truck? (Yes or No)\_\_\_\_\_

12. SYSTEM DIAGRAM

Attach a diagram of the relative location of the above-listed components with plumbing and additional components necessary to make the system functional.

## SECTION X

### SPECIFICATIONS, UPRIGHTS, FORKS, FORK CARRIER, AND LOAD BACKREST

#### 1. UPRIGHTS

Is mast roller type? (Yes or No)\_\_\_\_\_

Are rollers permanently lubricated? (Yes or No)\_\_\_\_\_

Type bearings (ball, roller, etc.)\_\_\_\_\_

Type chains used (leaf, roller, etc.)\_\_\_\_\_

Chain size\_\_\_\_\_

Manufacturer\_\_\_\_\_part number\_\_\_\_\_

End item manufacturer's part number\_\_\_\_\_

#### 2. FORKS AND FORK CARRIER

Do forks and carrier conform to ANSI B56.1? (Yes or No)\_\_\_\_\_

Do forks and carrier conform to ANSI MH11.4? (Yes or No)\_\_\_\_\_

Are fork carrier bearings permanently lubricated? (Yes or No)\_\_\_\_\_

Type bearings (ball, roller, etc.)\_\_\_\_\_

Are forks capable of sliding across entire width of carrier? (Yes or No)\_\_\_\_\_

Are forks capable of being removed without removing load backrest? (Yes or No)  
\_\_\_\_\_

Fork length\_\_\_\_\_in., width\_\_\_\_\_in.,

Thickness at tip\_\_\_\_\_in., length of taper\_\_\_\_\_in.

Fork construction (welded, forged, etc.)\_\_\_\_\_

#### 3. LOAD BACKREST

Height above forks\_\_\_\_\_in., width\_\_\_\_\_in.

Method of attachment to carrier\_\_\_\_\_  
\_\_\_\_\_

Spacing between vertical members\_\_\_\_\_in.

Manufacturer's part number\_\_\_\_\_

Are there any protruding bolts beyond the side plane of the backrest? (Yes or No)  
\_\_\_\_\_

4. SIDE SHIFTER

Travel left side of center\_\_\_\_\_in.

Travel right side of center\_\_\_\_\_in.

Is side shifter integral or add-on carriage?\_\_\_\_\_in.

Manufacturer\_\_\_\_\_part number\_\_\_\_\_

End item manufacturer's part number\_\_\_\_\_

Side-shift carriage width\_\_\_\_\_in.

Side-shift carriage thickness\_\_\_\_\_in.

Type bearings\_\_\_\_\_

Are bearings permanently lubricated? (Yes or No)\_\_\_\_\_

Are forks capable of sliding across entire width of carriage? (Yes or No)\_\_\_\_\_

Are forks capable of being removed without removing load backrest? (Yes or No)  
\_\_\_\_\_

## SECTION XI

### MISCELLANEOUS

1. Do all screw threads on end item conform to National Bureau of Standards Handbook H28 (Yes or No)\_\_\_\_\_
2. Do all lubrication fittings conform to SAE J534? (Yes or No)\_\_\_\_\_
3. Are all lubrication fittings accessible to a hand-operated grease gun without use of hand tools? (Yes or No)\_\_\_\_\_
- If no, specify\_\_\_\_\_
4. Are engine and transmission mounted on elastomer shock mounts? (Yes or No)\_\_\_\_\_
5. List and describe all identification, instruction, and warning plates, including methods of attachment to end item normally furnished. (Drawings are desirable)
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
6. What color is end item painted?\_\_\_\_\_
7. Is yellow finish color No. 13538 in accordance with Fed-Std-595 a commercial option? (Yes or No)\_\_\_\_\_
8. Type of non-slip walkway coating furnished.\_\_\_\_\_



## SECTION XII

### PRODUCT RELIABILITY

1. State, in terms of service hours, intervals for all maintenance functions. In lieu of above, end item manufacturer can furnish copy of commercial lubrication and maintenance guide.
2. State conditions of the standard warranty issued to commercial contractors upon purchase of this item. Attach a copy of your standard warranty issued to commercial contractors. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Do you intend to furnish your standard warranty for this item? Yes \_\_\_\_\_  
No \_\_\_\_\_. If no, specify the reason for the differences. \_\_\_\_\_  
\_\_\_\_\_
4. State the number of mandatory field campaigns relating to the end item since beginning model-series production. \_\_\_\_\_  
\_\_\_\_\_  
Describe briefly the reason for the campaigns, time out of service, and correction required for each. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Describe all product changes made on end item since 1 January 1976. (Included under product changes are product improvements, field fixes or repairs, retrofits, etc.) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
6. State date series production began. \_\_\_\_\_  
\_\_\_\_\_

## SECTION XIII

### OPERATOR, MAINTENANCE, AND PARTS MANUAL DATA

1. Are the following furnished for the end item?

Operator's Manual	Yes_____	No_____
Maintenance Manual	Yes_____	No_____
Rebuild Manual	Yes_____	No_____
Repair Parts Manual	Yes_____	No_____
Lubrication Instructions	Yes_____	No_____
Training Aids	Yes_____	No_____
2. Does the manufacturer have manuals containing information in accordance with MIL-M-7298C for all assemblies and components supplied by the manufacturer?

Operator's Manual	Yes_____	No_____
Maintenance Manual	Yes_____	No_____
Rebuild Manual	Yes_____	No_____
Repair Parts Manual	Yes_____	No_____
Training Aids	Yes_____	No_____
3. Is the installation and use of options adequately explained in these manuals or are separate manuals required? (Yes or No)\_\_\_\_\_
- Are they available? (Yes or No)\_\_\_\_\_
4. Do the manuals designate and describe the need and use of special tools? (Yes or No)\_\_\_\_\_
5. Is there a system of updating and making revisions to manuals after issue? (Yes or No)\_\_\_\_\_

## SECTION XIV

### SPECIFICATIONS, LUBRICATION

1. ENGINE

What detrimental effect is there in using MIL-L-2104 or MIL-L-46167 lubricants? \_\_\_\_\_  
\_\_\_\_\_

2. TRANSMISSION (Including Torque Converter)

What detrimental effect is there in using MIL-L-2104 or MIL-L-46167 lubricants? \_\_\_\_\_  
\_\_\_\_\_

3. DRIVE AXLE

What detrimental effect is there in using MIL-L-2104, MIL-L-2105 or MIL-L-46167 lubricants? \_\_\_\_\_  
\_\_\_\_\_

4. STEERING SYSTEM

What detrimental effect is there in using MIL-L-2104 or MIL-L-46167 lubricants? \_\_\_\_\_  
\_\_\_\_\_

5. GREASE LUBRICATION PROVISIONS

What detrimental effect is there in using MIL-G-10924 lubricants? \_\_\_\_\_  
\_\_\_\_\_

6. HYDRAULIC SYSTEM

What detrimental effect is there in using MIL-L-2104 or MIL-L-46167 lubricants? \_\_\_\_\_  
\_\_\_\_\_

7. BRAKE SYSTEM

What detrimental effect is there in using VV-B-680 lubricants? \_\_\_\_\_  
\_\_\_\_\_

## SECTION XV

### QUALITY ASSURANCE SYSTEM

#### 1. PRODUCTION BACKGROUND:

- a. Has the manufacturer provided similar equipment to the government in the past two years? (Yes or No)\_\_\_\_\_
- b. If answer is yes, state:
  - (1) Model Number\_\_\_\_\_
  - Standard Commercial (Yes or No)\_\_\_\_\_
  - Modified Commercial (Yes or No)\_\_\_\_\_
  - (2) Quantity\_\_\_\_\_
  - (3) Military specification(s) applying to contract(s).\_\_\_\_\_
  - \_\_\_\_\_
  - (4) Contract Number(s)\_\_\_\_\_
  - (5) State quality control system used.
    - (a) MIL-I-45208 (Yes or No)\_\_\_\_\_
    - (b) MIL-Q-9858 (Yes or No)\_\_\_\_\_
    - (c) Other (Specify)\_\_\_\_\_
  - (6) State government testing performed.
    - (a) PPT (Preproduction Tests) (Yes or No)\_\_\_\_\_
    - (b) IPT (Initial Production Tests) (Yes or No)\_\_\_\_\_
    - (c) ICT (Inspection Comparison Tests) (Yes or No)\_\_\_\_\_

#### 2. COMMERCIAL QUALITY ASSURANCE PROCEDURES:

- a. State if the current plan is similar to any of the established Military systems listed:
  - (1) MIL-I-45208 (Yes or No)\_\_\_\_\_
  - (2) MIL-Q-9858 (Yes or No)\_\_\_\_\_
  - (3) Other (Specify)\_\_\_\_\_
- b. Please attach a copy of manufacturer's plan (if available).

## SECTION XVI

### PREPARATION FOR DELIVERY

#### 1. PRESERVATION AND PACKAGING

- a. Does the manufacturer have a commercial procedure for preservation for overseas shipment and indefinite open storage? (Yes or No)\_\_\_\_\_

If so, state below how item is prepared.\_\_\_\_\_

\_\_\_\_\_

- b. Does the manufacturer have a commercial procedure for preservation and packaging for covered storage (indefinite) and multiple handling? (Yes or No)\_\_\_\_\_

If so, state below how item is prepared.\_\_\_\_\_

\_\_\_\_\_

- c. Does the manufacturer have a commercial procedure for preservation and packaging for immediate use upon receipt of the equipment at the first destination? (Yes or No)\_\_\_\_\_

If so, state below how item is prepared.\_\_\_\_\_

\_\_\_\_\_

#### 2. MARKING

- a. Describe address marking\_\_\_\_\_

\_\_\_\_\_

- b. Describe nomenclature marking\_\_\_\_\_

\_\_\_\_\_

- c. Describe special marking (U.S.A. number)\_\_\_\_\_

\_\_\_\_\_



3. TREATMENT AND PAINTING (Commercial)

- a. Describe treatment\_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- b. Describe painting\_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

4. DEPROCESSING INSTRUCTIONS

- a. Is deprocessing of the end item or any component or system, or drive assembly required upon receipt of the end item at its final destination? (Yes or No)\_\_\_\_\_
- b. If yes, describe (be specific)\_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- c. Are the deprocessing instructions affixed to the end item prior to shipment? (Yes or No)\_\_\_\_\_

## SECTION XVII

### SPECIFICATIONS, TRANSPORTABILITY

#### 1. TIEDOWN PROVISIONS

Number\_\_\_\_\_

Capacity of Each\_\_\_\_\_

Location\_\_\_\_\_

#### 2. LIFTING PROVISIONS

Number\_\_\_\_\_

Capacity of Each\_\_\_\_\_

Location\_\_\_\_\_

Are these provisions in accordance with MIL-STD-209? (Yes or No)\_\_\_\_\_

How is the end item lifted for shipboard loading?\_\_\_\_\_

\_\_\_\_\_

## SECTION XVIII

### LOGISTIC SUPPORT DATA

The purpose of this section is to provide data as to the support capability of the manufacturer relative to the requirements of the mission profile.

1. List below all manufacturing facilities, parts depots, distributors, and service training facilities both in the United States and worldwide. Use the following symbols for marking:

- \* Manufacturing facility of end items.
- Parts depots capable of supplying end items, repair parts, or replacement parts.
- △ Distributors of end item.
- Service training facility of end item.

---

---

---

---

---

2. What facilities listed above are company-owned or subsidiary organizations?

---

---

---

---

---

3. What facilities are franchised dealers?

---

---

---

---

---

## SECTION XIX

### DEPLOYMENT DATA

The purpose of this section is to show where user field experience data may be obtained on the end item.

1. Provide a representative list of users of this end item. Include the following information for each user:
  - a. Name of user of the end item(s).
  - b. Address of user.
  - c. Contact personnel with telephone number(s).
  - d. The quantity of end items purchased.
  - e. The year of manufacture of each end item.
  - f. The dealer that services the end item (include the dealers address, contact personnel, and telephone numbers.)

---

---

---

---

---

---

---

---